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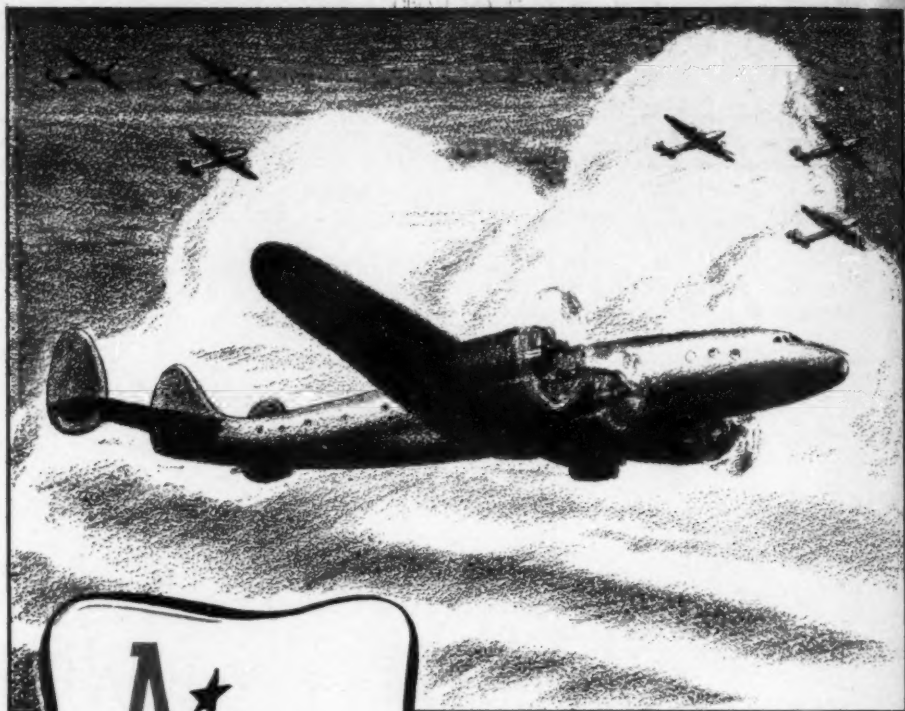
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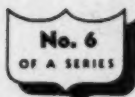
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AIR TRANSPORTATION'S COVER

AMPHIBIOUS C-47 IN FLIGHT: In flight, the landing gear of this experimental amphibious C-47 (Douglas DC-3) cargo plane, now at Wright Field, O., retract into the floats which are among the largest of their kind ever built. They are over 41 feet long, five feet high and a maximum width of five feet. Rudders help guide plane in water. Tests next winter by Materiel Command engineers may prove that the amphibian can also land on ice and snow. If so, it will mean the plane will be able to adapt itself to all types of landing and takeoff conditions. And it will mark another achievement for that old workhorse of the airlines, the Douglas DC-3.

Beechcrafts at work



In 1939 the U. S. Army Air Corps, preparing for any eventualities, ordered a quantity of F-2 BEECHCRAFT twin-engine all-metal monoplanes, especially equipped for rapid and accurate mapping of large areas. Adapted from the commercial Model 18 BEECHCRAFT airline and executive transport design, these planes carried two multi-lens tactical mapping cameras mounted in tandem.

Their special task (in addition to photographic training and other duties) was to map large portions of the United States and its possessions which had never before been completely surveyed. Operating at high speed from great altitudes, the F-2 BEECHCRAFTS fulfilled this vital task long before December 7th, 1941, when its importance became obvious. . . . This is one of many instances of Air Forces foresight and efficiency in which BEECHCRAFTS have been privileged to do their part.

*The F-2 Beechcraft above the highest land masses on the North American Continent
Official photograph U. S. Army Air Forces*



Beech Aircraft



CORPORATION

BEECHCRAFTS ARE DOING THEIR PART

WICHITA, KANSAS, U. S. A.

Historic Battle On Freedom of Air Gets Under Way

16 Domestic Airlines Issue Call For Free World Competition; Pan Am, Export, United Absent

SIXTEEN of the nation's commercial airlines last month adopted a five-point declaration of policy on international air transport and served notice on the Civil Aeronautics Board of their intention to file promptly applications for world-wide air routes.

But this was no unanimous voice of U. S. air transport. Not quite. For conspicuously absent from the lines issuing the declaration were three potent voices: those of United Air Lines, American Export and, most powerful of all—especially in the international field—Pan American.

The 16 lines (reported to have invested \$250,000 in a body called The Airlines Committee on International Routes to further the cause) adopted a five-point platform which they urged as the basis for "Government plans now being formulated":

Agreeing that America's stake in the future calls for prompt action in determining a national air policy, executives of the airlines urged that government plans now being formulated be based on the following five principles:

- I. Free and open competition—world-wide—subject to reasonable regulation by the appropriate governmental agencies.
- II. Private ownership and management.
- III. Fostering and encouraging by the government of the United States of a sound world-wide air-transportation system.
- IV. Freedom of transit in peaceful flight—world-wide.

V. Acquisition of civil and commercial outlets required in the public interest.

The declaration of policy, drafted during a five-day conference of airline presidents in Washington, was presented to the Civil Aeronautics Board. The executives declared that the nation requires and must have a comprehensive world system of air transportation linking all sections of the U. S. with major trade areas of the world if we are "to meet the requirements of the domestic and foreign commerce of the U. S., the postal service, and the national security."

Given the opportunity, the airlines, which today "are carrying on world-wide operations for the military forces," will serve civilian needs abroad on an expanding scale immediately after the defeat of the Axis powers in Europe, the presidents pointed out. They said their companies "are now flying in the war effort with excellent records of performance under contract with the armed forces to all five continents of the world over tens of thousands of route-miles."

Of the need for a high-speed service to carry medical supplies and other emergency items to starving and war-torn countries, the group declared that the "establishment of a system of air transportation along sound lines will and must be a powerful factor in rehabilitating and readjusting the battle-torn economy and commerce of countries both large and small, whether Allied, Axis or neutral and serve as a dominant influence for a lasting peace."

To meet future needs for an adequate U. S. air transportation system, the airlines proposed a network of routes extending:

1. Between cities of the East Coast of the United States and Canada, certain Atlantic Ocean Islands, South America, the British Isles, Northern, Central and Southern Europe, the Mediterranean area, Africa and Asia.
2. Between cities on the West Coast of the United States and Canada, certain Islands in the Pacific, New Zealand, Australia, Alaska, Russia, Japan, the East Indies, China and Asia.
3. Between cities on the Northern boundary of the United States and Canada, Alaska, Russia, East Asia, Japan, the Philippine Islands, the East Indies, Northern and Central Europe, the British Isles and Asia.
4. Between cities on the Southern boundary of the United States and Mexico, Central America, Islands of the Caribbean, the Canal Zone, South America and Africa.

The airlines agreed that the allocation of specific routes to individual carriers was a matter for the CAB to determine "under the Civil Aeronautics Act and within the limitations of the commercial rights acquired by the United States in its negotiations with foreign countries."

"The U. S.," the operators stated, "has spent hundreds of millions of dollars on airport and other air navigational facilities throughout the world which in a large measure may be expected to become available to U. S. flag air carriers and air carriers of other countries after such facilities have served the military purposes for which they were constructed. Even though the sovereign rights over such facilities may rest with the nations in which they

are located, the right of transit, and in many instances commercial rights, should be preserved for such U. S. flag carriers."

Any policy of monopoly was condemned, the group stating firmly that "without question, in air transportation where boundaries become meaningless, there can be no rational basis for permitting air transportation within the country to develop and expand on a competitive basis and that outside the country, left to the withering influence of monopoly."

The airline heads recognized the necessity of giving certified operators the right of free passage across foreign countries by declaring:

"If today, in the war effort it is necessary for military aircraft to fly through the air space over foreign countries together with the right to land for refueling and other technical purposes, that right of transit will be equally if not more important in the reconstruction period that must follow the declaration of peace. Commercial outlets, which are the desire of every country to acquire for itself in other countries, will be seriously impaired unless the right of transit is fully recognized. Consequently, in the arrangements which this Government will undertake with foreign governments, the right of innocent flight is the keystone for the development of all countries of their foreign air transportation routes and of international goodwill and understanding."

The conference disclaimed any intention to deny reciprocity rights to foreign-flag operators, characterizing as "self-evident," the need of "recognizing the basic policy of the reciprocal right of innocent flight and of negotiated commercial air rights."

"Unless the right of innocent flight (the freedom of civil and commercial passage through the airspace of another country) is fully recognized by this country as well as other countries, the boundaries of each will be as formidable as have been the barriers of the oceans and the mountains to surface carriers," the airlines warned.

One of the major objectives in developing an international air policy now, it was pointed out, is to "provide employment to as great an extent as possible for the men of the armed forces who will return to civil life upon the cessation of hostilities," and to the hundreds of thousands now engaged in aircraft and production.

Obviously—too obviously for anyone to



Representatives of nine of the sixteen airlines which recently signed the declaration of international policy are pictured at a press conference in Washington. Left to right, they are Buell Patterson, American; MacDonald Bryan, National; Croil Hunter, Northwest; Paul Brattain, Eastern; Jerry O'Donnivan, Pennsylvania—Centarl; Jack Frye, TWA; S. J. Solomon, Northeast; Clinton Hester, Chicago & Southern; and Harry Springer, All American.

ignore—the attack on “monopoly” in the international field was aimed directly at mighty Pan American which—S. J. Solomon, president of Northeast Air Lines, and a major spokesman for the 16 lines, declared—already has exclusive operating contracts with 40-odd foreign countries.

But the hand that delivered the blow was at least gloved. For Solomon told the *New York Times* that he felt certain that “neither Pan American nor any other company would stand in the way of the U. S. Government if it felt such exclusive contracts were inimical to American welfare.”

What seemed most certain of all, however, was that a battle had been launched—a battle between the domestic airline proponents of relatively unrestricted competition throughout the world and the lines—primarily Pan Am—which before Pearl

Harbor had pioneered international business under the U. S. flag with little or no competition from inside the U. S.

Time, 10 days after the meeting, threw another note into the story with the indication that the Army Air Forces’ General H. H. Arnold was the major brain behind the 16-airline statement, because of his belief that the U. S. will be stronger as a nation in the post-war period if more and not fewer U. S. airlines are flying the international skies.

Signatories to the inter-airline policy were All-American Aviation, American Airlines, Braniff, Chicago & Southern, Continental, Delta, Eastern, Inland, Mid-Continent, National, Northeast, Northwest, Pennsylvania-Central, TWA, Western and Colonial Airlines.



Done-Over Bombers Will Never Serve All Cargo's Needs

*Freight-by-Air Will Require
Planes Expressly Built for It,
Says Consolidated Head*

By HARRY WOODHEAD

President, Consolidated Vultee Aircraft Corp.

THE phenomenal growth of air power in World War II holds two promises: first, that the Axis will be defeated; second, that war's nightmare will be followed by an awakening in which international isolation will cease to exist.

Tomorrow, through the power of air transport, nations the world over will become interdependent and interrelated. Even today, in the midst of war, no spot on earth is more than 60 hours from one's local airport.

The coming of the air age, coupled with its profound geographical changes, has been so rapid that few of us realize its full meaning.

Only 34 years ago Robert E. Peary discovered the North Pole. He spent from the summer of 1905 until April 6, 1909—nearly four years—getting there. And the news didn't reach us until months later. Tomorrow, planes flying from Washington to Moscow, 4,883 miles, in 24 hours, will pass not far to the right of the North Pole. Planes flying from Chicago to Singapore, 9,365 miles, in 47 hours, will pass not far to the left of it. Passengers will be in complete comfort during the few hours they are over these icy waters.

The North Pole region, once the prized goal of intrepid explorers, will become no more important than a flag stop. It is even within the realm of possibility that we will have a North Pole airport!

It took Henry M. Stanley, of the *New York Herald*, more than two years—from 1869 to 1871—to go from New York into "darkest Africa" to find the lost explorer,

David Livingstone. Remember, this was only about 70 years ago, the length of one human life. Their meeting place was a swahili native town called Ujiji, on the eastern shore of Lake Tanganyika, which separates the Belgian Congo from the territory formerly known as German East Africa. It would not surprise me at all to learn there is an airport which is literally a stone's throw from the spot where that historic meeting between Stanley and Livingstone took place.

When President Lincoln went from Washington to Richmond to visit the front during the Civil War he covered approximately 110 miles. He left Washington at one o'clock on the afternoon of March 23, 1864. He went by sea, aboard the *River Queen*. Twenty-nine hours after leaving Washington, he arrived at City Point. From there, he went by steamer up the James River. The vessel ran aground. The entire trip, finished by barge, consumed about 52 hours.

President Roosevelt, traveling by airplane to visit the North African front at

Casablanca early this year, covered 7,700 miles in about the same time as President Lincoln took to make his 110-mile trip less than 80 years ago.

In 1860-61 the Pony Express broke all records between St. Joseph, Mo., and San Francisco, Calif., a distance of 1,950 miles, in eight days. Today, such a trip by airplane can be made in seven hours (and the distance by air is only 1,450 miles). The mail rate then was five dollars per half-ounce, and today the air mail rate is six cents per ounce.

Today, it takes less time to travel by plane from New York to Moscow than it does to travel by train from New York to Miami. In Texas the distance from El Paso to San Antonio is 617 miles—an 18-hour trip by train. The airline route from New York to London is 3,460 miles—a 17-hour flight.

In recent months *Liberator* planes have made many round trips between Newfoundland and Britain; the record trip was made in 6 hours and 20 minutes. Only 24 years ago—in 1919—the British aviators, Alcock and Brown, became world famous when they made the first transatlantic air crossing over the same route.

* *

IN looking ahead, it is necessary to divide aviation into three classes. The first is the military, the second is the domestic and international commercial, and the third is private flying. As a manufacturer, and as a lover of peace, I look to the maintenance of a postwar international aerial police force. After the last World War we made a large number of pacts, covenants and treaties. But we failed to develop a method of enforcement. This time I think we will not repeat that mistake.

It would be wise, in my opinion, to establish an international aerial police force stationed at bases in all parts of the world. Such bases would be adequately manned with all necessary types of aircraft, pilots, and ground personnel. There would be suitable supplies of fuel and oil. There should be adequate equipment for all types of repair and maintenance. These aircraft should always be kept in perfect shape for immediate action. As fast as they become obsolete, they should be retired. And I think these bases should not be of

a temporary nature, but built and equipped and manned for permanent use.

I estimate that such an international aerial police force would require at least 30,000 planes. These planes would range from small liaison and observation planes to huge bombers and transports. Figuring on ordinary wear and tear, plus obsolescence—for many would be retired as

Woodhead Declares . . .

The postwar international police force that will be necessary to keep world order alone will require some 30,000 planes. And it will take 6,000 new planes a year to keep its strength at that level.

True military and true commercial aircraft are utterly different—and are becoming more and more different with the progress of better design. It will probably be not only better but cheaper to build all postwar cargo planes as such, rather than try to convert bombers for the purpose—no matter how many leftover bombers are around when peace comes.

Middle-sized planes rather than giants will probably be the most common transports of the future. (Although Consolidated Vultee itself is working on a 400-passenger model for transoceanic work.)

Consolidated Vultee is working also on its own version of the helicopter—"not a cure-all," says Woodhead, but a big step forward.

William B. Stout, pioneer designer of early big planes such as the famous Ford Trimotor, is now working on postwar research for Consolidated Vultee.

the result of improvements through research—the life of such craft would be about five years. In other words, replacements for this international police force would amount to 6,000 planes per year.

In addition to this police force I think we should maintain our own combat air force. This should be quite large. We would have to continue to develop new pilots constantly, which would call for training planes of all types and sizes. Such an air

force would require many thousands of aircraft. The previously mentioned international police force, and our own combat and training forces should provide very good markets for the planes we will build in the future.

* *

OBVIOUSLY, we will have a great many more than 30,000 airplanes available from all military sources when this war is over. The belief exists in some quarters that many of these will be diverted to commercial use so that there will be no need whatever for new commercial planes. Such pessimism ranks only with the huge optimism which sees so many airplanes in the air that the sun will be darkened. Looking into the situation realistically, we find the following conditions:

First, the longer the war lasts, the greater will be the difference between military and commercial aircraft. Even today, practically the only military airplanes adaptable to commercial use are the cargo planes and transports. Even these would need considerable modification in the course of conversion from the military to the commercial. Furthermore, we do not at this time have a great many of such craft. Time alone will tell how many we have when the postwar era begins.

The commercial aircraft, as distinguished from the military bomber, is built to carry human beings, express, freight and mail, all of which are comparatively light and bulky. Cargoes such as this call for large fuselages. On the other hand, military loads, such as guns, bombs and ammunition, are small, compact and heavy. These items demand small fuselages.

Designers know that small fuselages offer less resistance than large ones to passage through the air, and therefore they are making them smaller and smaller in relation to the total size of the aircraft. These same designers are adding much more horsepower to increase performance. Therefore, on the commercial side you have an airplane which is comparatively slow, with a large fuselage. On the military side you have an airplane which is very fast, with a small fuselage. As time passes, military fuselages will become smaller and smaller, relatively speaking, while power becomes greater and greater. Such airplanes will eventually become "flying artillery." They will not in any

way be adaptable to postwar commercial use.

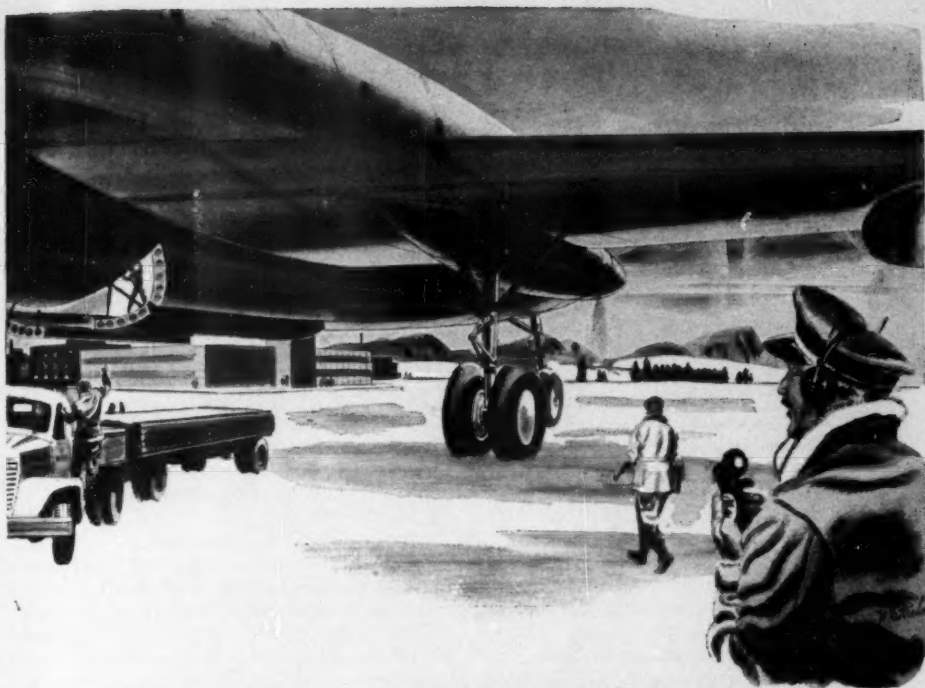
Add to this the fact that military aircraft are designed and equipped to carry such cargoes as bombs, machine guns and armament, calling for bomb-bay doors, special hatches, turrets and other equipment, and it is easy to see how dissimilar the two types of planes are and will be. Conversion from the military to the commercial would be such an extensive and expensive job that it would be better to start all over at the beginning and build comfortable, efficient and practical commercial planes which can be both manufactured and operated with extreme economy.

Lower Costs Imperative

Speaking of economy, it is necessary to note that after the war aircraft will have to operate much more cheaply than they are operating right now if they are to share in the world's cargo transport. It should be clear to all of us that an airplane, requiring, let us say, 5,000 horsepower to lift a few tons, cannot compete with a railroad engine which, with the use of half that horsepower can pull hundreds of tons. Nor can that airplane compete with an ocean liner under the same conditions. True, the airplane offers speed, but how many of our nation's shippers demand overnight transcontinental or transoceanic service?

In considering the postwar airplane, the first problem is that of design. We are now designing for mass production, which simply means that we are, through mechanization, lowering the man-hours needed to produce each unit. At the same time, we are designing to facilitate ease of maintenance and repair. And while we are doing this, other things are happening.

The Air Forces are training a great number of capable pilots. At the same time, they are training mechanics to maintain and repair our aircraft. And we are establishing a network of airports throughout the world. The importance of these phases of development cannot be discounted. Turn back, for a moment, to the expansion of the trucking industry. Trucks did not make the roads, but the roads made the trucks. In other words, it was not until smooth highways linked every town and hamlet and there was a



The all-cargo **CLIPPER EXPRESS** may come before Peace

As airplanes grow in size something very important happens . . . More cargo can be carried in relation to the plane's total weight.

* * *

When war needs permit, new, much larger, all-cargo Clippers will be produced. Then it will be natural to look to Pan American for leadership in the international air cargo field.

Pan American pioneered both overseas Air Freight and Air Express. Someday exporters and importers will refer to air cargo ship-

ments abroad as "going by *Clipper Express*"... Just the way, today, passengers speak about having "come home by *Clipper*" from Europe.

It will not be necessary, then, to talk about international "Air Express" or "Air Freight." *Clipper Express* will mean both.

... And it will also, of course, mean Pan American — the system which has developed the necessary "know-how" by piling up more than 185,000,000 miles of over-ocean flight in its 15 years' experience.

Pan American World Airways System

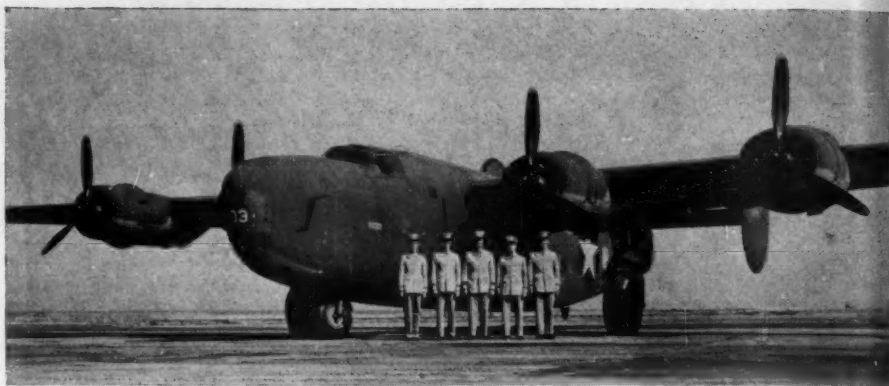


BUY WAR BONDS

Wings over the WORLD

PAN AMERICAN WORLD AIRWAYS

AUGUST 1943—PAGE 11



DESPITE THE FACT that the big Consolidated Liberators are doing yeoman wartime transport service (as is this one operated by a United Air Lines crew—see page (15), Consolidated's President Woodhead sees no great postwar cargo-carrying future for them or any other bombers.

service station at every crossroads, that the trucking industry became nationwide.

As groundwork for our postwar operations we today find comparable boons. We have plenty of airports and roadside landing strips, with more being built, and we have the men to repair and maintain the aircraft which we are now building.

* *

ONE of the questions frequently asked is how big airplanes will become. Part of my answer is that we have not yet reached design limits on any of the airplanes we have produced, are experimenting with, or have on our drawing boards. The second part of my answer is even more to the point. Airplanes will become only as large as they can be operated efficiently and economically for the purpose to which they are suited.

I think I might liken our situation to that of the shipbuilding industry. For a while, a few years ago, we had huge ocean liners such as the *Normandie* and *Queen Mary*. But pretty soon it was discovered that while these ships had class and luxury, they could not be operated economically. Builders, at the behest of disillusioned operators, began turning out smaller all-purpose vessels. Whether or not this will occur in the aircraft industry remains to be seen. However, I firmly believe that competitive experience will establish the most efficient size of our aircraft, whether operating short-haul feeder lines or lines in transcontinental and transoceanic service.

There are several ways of looking at the air transport problem in all its phases. Personally, I think you can boil it down to one example.

Consider that an operator in any kind of service has a fluctuating business. On one day he has 100 passengers and next day he has 50 passengers. It would, in my opinion, be wiser to have two comparatively small airplanes than one large airplane. The smaller airplanes could be run as sections, depending on the demand for transportation. If he used the large airplane on every run, he'd spend just about as much money carrying 50 passengers as he would carrying 100 passengers. On the other hand, on a light day, he could run only one small plane and save considerable operations costs. You can carry this further and consider frequency of schedules. I would say that it would be more a matter of public convenience, with more resultant revenue, if he dispatched two relatively small planes at different hours of the day, rather than only one large one once a day.

It is apparent that there will be all sizes and types of freight and passenger airplanes. Each airplane will be suited to a specific purpose. Small comparatively light airplanes will be used on feeder lines and for short runs. Large craft will be used to span continents and oceans non-stop. Our company feels that a 400-passenger cargo transport is not too large for transoceanic flights. Ocean liners carry 3,000 passengers or more. We have at the

present time a non-flying full-scale model of such an aircraft and we intend to build it. In fact, we are working on it now.

* * *

WHILE the divorce between the commercial and military aircraft of which I have spoken is now going on, we are learning a great deal from the military which will be carried out later in the commercial manufacturing field.

First, we are getting far more scientific and comprehensive instruments. Second, we are getting more and more radio aids. We are also developing pressurized cabins. A combination of these improvements means that eventually we will become entirely independent of weather conditions. We will be able to fly over weather and to land in it.

In addition to our constant improvement of conventional models, we are working on our version of the helicopter. Such an aircraft, which can rise and descend vertically, has many obvious advantages. I frankly do not believe this a cure-all, but it is a step forward in the history of man's conquest of the air.

On our staff at present is William B. Stout [AIR TRANSPORTATION, December, 1942], head of the Stout Research Labora-

tories, which have become Consolidated Vultee's research division. Mr. Stout is credited with a great many innovations and inventions. I would say that he was responsible for the first commercially successful all-metal monoplane, which was extensively used by the airlines in the late twenties [the famed Ford Trimotor—Ed.]. Considering his past, which has been devoted to making things light, and at the same time strong, I think we can expect much from him as the war progresses.

Such innovations as I have outlined undoubtedly will occupy our brains and our hands during the postwar era. We just haven't time for them during the present rush to produce airplanes such as the *Liberator*, which has already proved its value as a long-range bomber. Our present consideration is to design and produce models which will win the war.

After the war we must consider not only the economy of operation but the economy of construction. In this respect, our tendency is to cut man-hours of labor in the production of each single unit. It is a case of coming events casting their shadows before. In the case of the *Liberator*, we have been able so to improve our efficiency that we are making two and one-half units today against one unit a year ago with no increase in employment.

The Author

HARRY WOODHEAD, president of Consolidated Vultee Aircraft Corp., entered aviation to build aircraft engines after a long career in steel. In April 1940 he became president of Aviation Manufacturing Corp., whose chief product was Lycoming engines, then a subsidiary of and since merged into The Aviation Corp.

From there, a few months later, he went to Vultee Aircraft Inc. as board chairman. Near the close of 1940 he also became president of Auburn (now American) Central Manufacturing Corp. Early in 1941 he was elected chairman of both Aviation Manufacturing and Auburn Central. He became president of Consolidated at the beginning of 1942, after Tom M. Girdler had been named chairman of both Vultee and Consolidated. In November 1942, Woodhead also was elected president of Vultee Aircraft Inc.

Woodhead installed at Vultee the first completely mechanized assembly line for airplane

construction, developing the conveyor system techniques that today play a major role in war production. Few aviation leaders believed such streamlined operations were feasible for aircraft. But Woodhead proved that airplanes could be turned out in a steady stream, just like automobiles.

Today at Consolidated, he sees Consolidated men proving that mechanized assembly lines are equally successful on planes of much heavier tonnage—the B-24 *Liberators*, *Catalinas*, *Coronados*—all huge bombers.

Woodhead was born in England in 1889. He came to the U. S. in 1909, a skilled tool and die maker, and went to work for Cleveland Metal Products Co.

By 1924 he had risen to the vice presidency of Midland Steel Products Co. Still stepping forward he took over the reorganization of Hydraulic Pressed Steel Co., which in 1935 became Truscon Steel Co., a subsidiary of Republic Steel.

I AM not boasting about what Consolidated Vultee has done. There is no boasting in wartime—but there is satisfaction in a job well done, both in volume of aircraft production and the efficiency of workmanship that is saving time and money for the war effort.

The aircraft industry looks forward to victory, first of all. Then, to a settled and indispensable position in the postwar economy—for the airplane will be as indispensable in peacetime as it now is in wartime.

It is not difficult to foresee what the aircraft industry *can* do after the war, for it has proved itself in wartime. What it *may be permitted* to do is a different thing. A durable peace and a settled economy for the whole people are quite as important as the war victory.

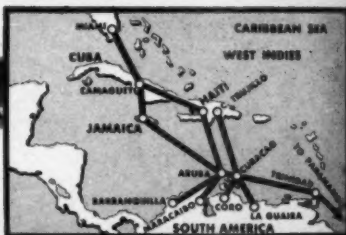
If America's air awakening is to benefit everyone in the postwar world, plans

must be made now. The immediate need is for government action that will provide for termination of war contracts in an orderly fashion and that will permit manufacturers to build up financial reserves to help ease the otherwise painful and disastrous process of transition from wartime to peacetime production.

All industry will have to have the means for a gradual and orderly change-over—or the entire structure of American life, based upon full employment, productivity and purchasing power—will suffer. The newest major industry, the infant because a giant—the aircraft industry—needs these means most of all.


The need is not for the men and management who make up the aircraft industry, but for the national economy as a whole. This nation and the world have awakened to air power—for war and for peace.

The Flying Dutchman Again Blazes an Air Trail



**Provides Vital Passenger and Freight
Link Between the Americas**

Brings New York within 24 Hours of Curacao

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Member International Air Traffic Assn.

Three-Million-Mile Flier Looks Back On Vast Air Development

*United's Capt. Hamilton Lee
Sees Even Greater Progress
Ahead for Air Transport*

MEMORIES of adventuresome, difficult days in pioneering the nation's air mail service have been recalled for a number of airline pilots this year with observance of the 25th anniversary of air mail service. Seated in the forward compartment of a 12-ton twin-engined Mainliner, Captain E. Hamilton Lee, of United Air Lines, can think back to the time when he rode in the open cockpit of a single-engined, 100-mile-an-hour Curtiss *Jenny* in flying over this country's first scheduled air mail route between New York and Washington. Looking at the maze of dials and switches on the panel before him, Lee can recall the inadequate, none too reliable instruments which he used a quarter of a century ago. Talking to the ground by two-way radio telephone communication, he can remember the days when, if he spoke at all, he talked to himself.

Looking out at the two 1,200-horsepower Wasp engines of his Mainliner, at the first officer beside him, and at the general duplication of virtually everything connected with the plane and its operation, he can contrast those with the single 150-horsepower Hispano-Suiza, the lone pilot and the complete lack of such safety features in that 1918 venture.

Captain Lee, typical of the men who blazed the air trails of the U. S. and who have kept pace with the progress of air transportation down through the years, is the dean of all pilots in the world, with more than 3,500,000 miles of flying to his credit. Indicative of the long way he has come from the birth of scheduled flying to its present stage of maturity is the fact that his son now also flies with United as a first officer.

Lee and others of United's present flying staff helped pioneer the nation's first coast-to-coast airway which was established as an outgrowth of the successful

Washington-New York operation. And it was on this route, from New York through Chicago to San Francisco, that they also laid the foundations for what today is United Air Lines.

First there was the Chicago-Cleveland leg of the original transcontinental, opened on May 15, 1919; next, the Cleveland-New York section, inaugurated July 1, 1919; next, the Chicago-Omaha leg, established May 15, 1920, and, finally, the Omaha-San Francisco section, opened Sept. 8, 1920, to complete an airway reaching all the way from the Atlantic to the Pacific.

Pioneered Night Flights

Over this future main line of United, Postoffice Department pilots proceeded to "sell" the commodity of air speed to a skeptical public. Air mail was carried by planes in daylight only, was forwarded on trains at night. Coast-to-coast air mail time was 78 hours.



PIONEER MAIL PLANE PILOT: *E. Hamilton Lee started flying air mail for the postoffice in December 1918. Now flying with United Air Lines, Lee is the dean of all pilots in scheduled flying. He is shown here standing beside his early mail plane during the pioneering period of air mail development.*

It soon became evident that, to realize its full value, air mail had to be moved by plane in daylight and darkness. Seven pilots of the Postoffice Department volunteered to show how it could be done. On Feb. 22 and 23, 1921, they recorded the first continuous day and night flight from San Francisco to New York, completed in 33 hours, 21 minutes. That led to appropriations for continuance of the air mail service and the lighting of the transcontinental route. Regularly scheduled day and night flights followed on July 1, 1924.

In 1926 and 1927, the Postoffice Department, having proved the practicability of air mail service, began turning over various of its routes to private contractors under open competitive bidding—and here began the formation of those companies which later were to make up United Air Lines.

Varney Air Lines, one of United's prede-

cessors, was the first domestic contractor to begin operations when it started operating single-engined Swallow planes between Pasco, Wash., and Elko, Nev., there connecting with the transcontinental route on April 6, 1926.

Pacific Air Transport, another United predecessor, began air mail service between Seattle and Los Angeles on Sept. 15, 1926.

Boeing Was Predecessor

Boeing Air Transport, founded by W. E. Boeing and the late Edward Hubbard, began service over the San Francisco-Chicago section of the transcontinental airway as the lowest bidder for that route on July 1, 1927. National Air Transport, fourth of the United predecessors, began service over the Chicago-New York section of the transcontinental on Sept. 1, 1927.

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airline progress was rapid. Occasional passengers, usually on life-and-death missions, began to fly with the mail pouches. Air shipments also began to take to the skies as organized air express service was established.

The first transcontinental passengers crossed the continent, in the two-place box-like cabins of single-engined Boeing 40A's and in the open cockpits of single-engined Curtiss *Carrier Pigeons*, in 32 hours with 14 refueling stops en route. The fare was \$400. Air travel then was both an ordeal and an adventure.

Year by year, airline operating efficiency increased. New instruments came to aid the pilot. Weather reporting was systematized. United's predecessor companies helped perfect and were the first to adopt two-way radio telephone communication between ground stations and planes in flight. Engines, propellers and accessories were improved. Operating policies reflected the "know how" of accumulated experience.

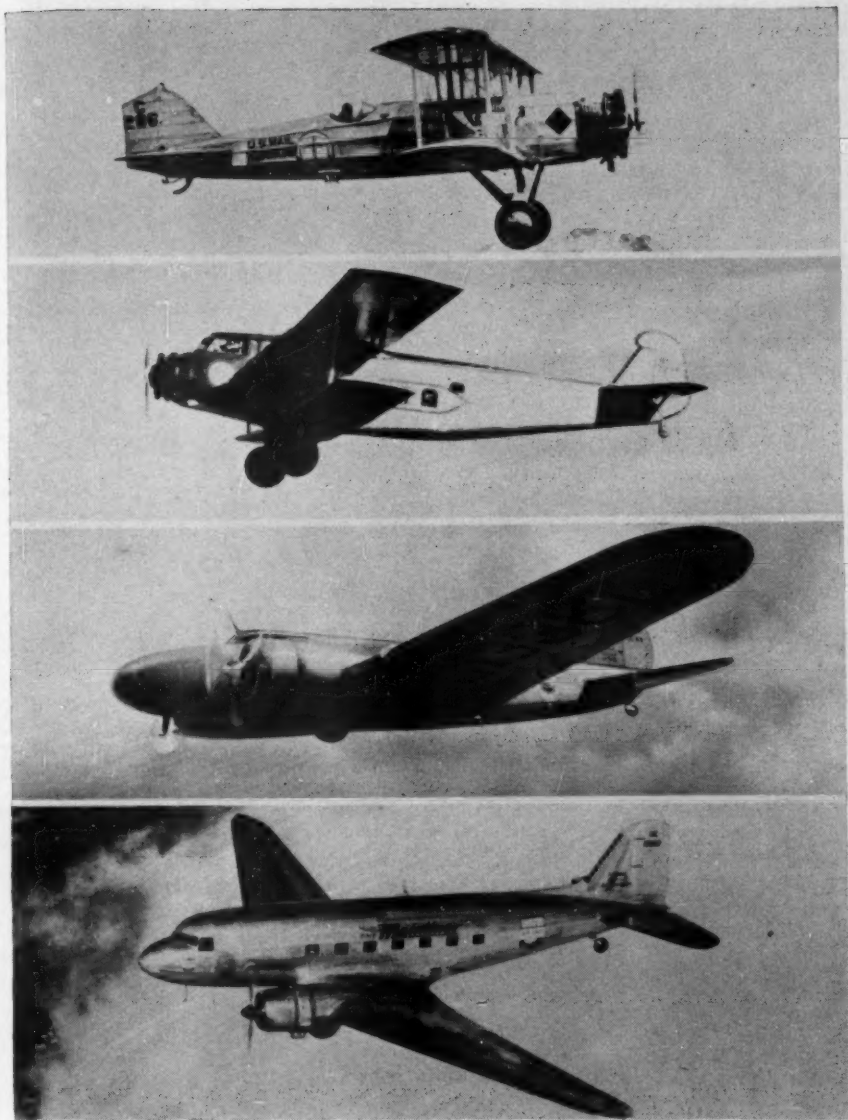
United was formed out of Varney Air



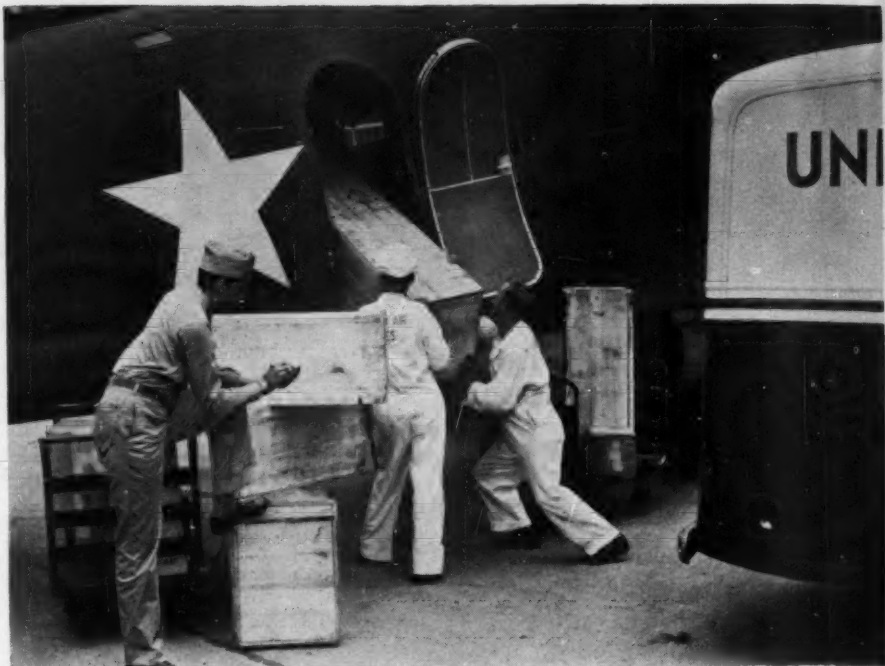
AIR TRANSPORT'S "FLYINGEST" MAN: E. Hamilton Lee, United Air Lines' pilot on the company's Los Angeles-San Francisco division, has the record of more air miles flown than any other pilot in the world. With 3,300,000 air miles on his log, Lee is the senior pilot of the air mail service.



FLYING FREIGHT FOR THE WAR: Stripped of its sumptuous passenger furnishings, a United Air Lines Mainliner does its job for Uncle Sam by hauling freight between air depots. Huge loads of war materials are being carried by the airlines in such contract cargo operations.



PARADE OF AIRLINE PROGRESS: *Four stages in the rapid development of air transportation as reported photographically by United Air Lines are represented here. From top: the single-engined Boeing 40, which pioneered commercial air mail and passenger transportation in 1927; the tri-motored Boeing 80-A which brought a new degree of air travel luxury and payload to the airways in 1928-29; the Boeing 247, first all-metal, low-wing, twin-engined transport which revolutionized air travel with its 3-mile-a-minute speed in 1933, and the twin-engined Douglas DC-3 Mainliner which took to the route in 1937, introducing new degrees of speed, efficiency, payload capacity and passenger comfort.*



AIR SPEED FOR WAR CARGOES: *A United Air Lines Mainliner, converted into a cargo plane and wearing the olive drab of the Army, is loaded with bulky shipments of military supplies for a fast flight to "somewhere". United is operating extensive cargo services under contract for the government in addition to its regular passenger-mail-express schedules.*

Lines, Pacific Air Transport, Boeing Air Transport and National Air Transport in 1931.

Meanwhile, a man who was to have much to do with United's further progress had left a career with the Wells Fargo bank of San Francisco to enter aviation as an assistant to the president of Boeing Airplane Co. He was William Allan Patterson, who [See *Air Cargo Personalities*, AIR TRANSPORTATION, July] was already making himself felt in air transportation. Patterson became a vice president of United Air Lines, Inc., in 1931 and president of United in 1934.

Coast-to-Coast in 16 Hours!

In 1933, United revolutionized the air transportation picture by introducing a fleet of Boeing 247 planes—the first all-metal, low-wing 3-mile-an-hour transports and forerunners of many of the military

and commercial types used today. These planes introduced new factors of speed, passenger comfort and operating efficiency. They reduced air travel time by approximately one-third. With their use, coast-to-coast travel time came down to 19½ hours.

Good as they were, the Boeing 247's eventually gave way. In 1937, United began adding Douglas DC-3 Mainliners to its fleet. Once again, speed and comfort was stepped up. Coast-to-coast travel time was cut to 16 hours. For the first time, overnight trips from coast-to-coast became possible.

Today, United operates regularly scheduled passenger-mail-express flights over 5,600 miles of airways, extending from New York through Cleveland, Chicago, Omaha, Denver and Salt Lake to the Pacific Coast and from Vancouver, B. C., to San Diego, California. But that is only part of the story in 1943.

United, like other airlines, is aiding the war program not only through the speedy

movement of essential civilian and military traffic but in many other ways. The company is operating contract military transport services for the Army Air Transport Command both within this country and over water to foreign lands, thereby playing its part in maintaining vital supply lines to world-wide combat zones.

At Cheyenne, site of United's central maintenance base, it is operating a bomber modification center where four-engined *Flying Fortresses* and other types are given last-minute alterations before leaving for the fighting fronts. At Denver, the company is operating a flight training center, giving thorough ground and flight instruction to Army pilots as well as to men who will become United co-pilots. At its training center at Oakland, the company has been giving large-scale instruction to Army Air Forces mechanics and technicians, and at major service stations along its system, it has been training Army mechanics and other military personnel.

Many a key executive is giving the benefit of his experience to the United Nations cause in a specialist position with the armed forces. A majority of United's research and development work now is focused on military projects.

Busy as it is, United is not overlooking the future picture. It believes that, possibly within 10 years, the airlines will carry 40 per cent of all express now carried by rail, 80 per cent of all passenger business now carried in first-class Pullman service, all first-class mail between points where overnight delivery is not possible by surface transport, 33 1/3 per cent of railway coach and intercity bus passenger travel, 80 per cent of parcel post, 10 per cent of less-than-carload rail freight and 5 per cent of less-than-truckload motor freight. Probably 5,250 planes of the type which may be expected in the immediate postwar period would be required to do this job, in United's view, as contrasted with the 350 planes operated by the domestic airlines prior to the war.

Captain Lee and his fellow veterans of the airways have seen all this history go by under the wings. As they ruminate on the changes which have taken place, they also can look ahead to the bigger things which are coming in the Age of Flight.

Advertisement

LETTERS

Heavy Over Your Head

Critical is the air mail problem today. Comparison of 1942-1943 statistics for one month reveals that 49% fewer planes are attempting to carry 69% more mail.

Situation could still be handled if many firms and individuals weren't pirating more than their fair share of cargo space and weight by using ordinary weight stationery for air mail.



"... plane pirate"

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Helping to lighten the air mail load is Eaton's Berkshire Air Mail Paper. Despite light weight, it has crisp feel, quality appearance, superior strength, is a durable traveler. From 8 to 24 sheets fly for the minimum domestic rate. And this is just one of Eaton's Berkshire papers for office use. See the line at leading commercial stationers.

Another problem solved by ...

Eaton Paper Corporation, Pittsfield, Mass.



—American Swedish Monthly Photo

"THE EAGLE" FLIES for Sweden's A. B. Aerotransport, despite war and weather, from Stockholm to Scotland. This U. S.-built Douglas DC-3 and others like her today carry all of Sweden's mail to and from the anti-Axis world.

Sweden Flies Ahead, Planning Ocean Airlines Once the War Is Over

By P. A. NORLIN

SWEDEN'S regular air traffic started in 1924 under the name of A. B. Aero-transport, privately owned but receiving from the very start great help from the Swedish postal authorities, which were highly interested in sending the Swedish mail by air. From 1925 the company received subsidies from the Swedish Government. At the same time, the Swedish postal authorities started to send not only surcharge mail over the Swedish air lines, but also ordinary mail without any surcharge. In this respect, the Swedish postal authorities have been pioneers in introducing into European air traffic the principle that ordinary mail without surcharge should be sent by air, as soon as air transport could give faster delivery than rail or ship.

In 1928, Swedish airlines in cooperation with the Swedish postal authorities started the first night mail traffic from Scandinavia to England. At that time, single-engine planes in which the cabin had been equipped with boxes, enabling a mail officer to sort and stamp the mail during the flight, were used. In the beginning only 200 to 300 lb. of mail per night were transported, but by 1939 the night air mail had increased to from 3,000 to 4,000 lb. per trip. The postal clerk, however, had to be left out, as the small single-engine planes of 1928 in rough night flying were too lively a postoffice to enable men to work, and later on, when bigger planes were put into service, there was too much mail in the planes, making it impossible to sort and stamp the mail during the night.

In close cooperation with Danish, Finnish, Norwegian and Dutch air traffic companies, A. B. Aerotransport steadily developed airlines over the northern part of Europe. In order to extend the Swedish airline net, the Swedish Government in 1937 increased its subsidies to Aerotransport and bought the majority of the shares in the company.

When the war started in 1939, Aerotransport was flying three services a day from Sweden to London and Paris and had airlines to the Baltics, Belgium, Finland, Germany, Holland, the other Scandinavian countries, Switzerland, and the U.S.S.R. In 1939 the company flew more than 2,000,000 miles and was the sixth company in Europe in miles flown. When the war broke out, of course, the company's network was severely cut down, but during most of the first year of the conflict Sweden still had connection with the Baltics, Finland, Great Britain, Holland, Germany, U.S.S.R., and Norway.

After the invasion of Norway and Denmark and later when the war between Russia and Germany made flights to Moscow impossible, the company was flying only to Great Britain, Germany and Finland. Today, all the mail from the U. S. and Great Britain to Sweden and vice versa is sent over the company's airline between Sweden and Scotland.

The financial position of the Swedish airlines has improved year by year. Thus, the proportion of the subsidies to the total income has since 1925 been:

	Per cent
1925	42.1
1930	41.1

1935	22.0
1940	12.3
1942	8.6

The company has since 1931 paid a dividend to its shareholders varying from 6 to 4 per cent.

The Swedish airlines have today two important tasks to fulfill: first, to try to keep up Swedish air connections efficiently as possible during the war, and second, to prepare their organization for postwar traffic.

Traffic today is maintained with great difficulty. To get gasoline, spare parts, and other material is not easy. The company has succeeded in mixing gasoline with 25 per cent alcohol, and though the mixture has not proved entirely satisfactory, it has served to keep the traffic moving.

On the postwar front, an airline between the U. S. and Scandinavia had already been planned before the war, in collaboration with the other Scandinavian air traffic companies. In 1940, a commission representing the four Scandinavian countries was in the U. S. to discuss it. But the invasion of Norway and Denmark in 1940 forced its postponement. Naturally no line in which all the Scandinavian air companies participate can be run till the war is over.

In Sweden, however, the Swedish airlines have tried in several ways to prepare for increased postwar traffic. The aerodromes in Stockholm and Gothenburg have been largely extended so they now can offer safe landings and take-offs for big four-engine airplanes of the most modern type. Aerotransport last year built big, new, modern workshops at Stockholm airport for about 4,000,000 Swedish crowns and there are hangar accommodations in Stockholm into which five to six big four-engine planes can be taken.

On the question of how an extended Swedish air service should be financed, discussions have taken place during the last year between Aerotransport and the Swedish authorities. The Government declared that they thought an extended Swedish line outside Europe for the present should be financed not by the Government, but by Swedish private capital interested in export, industry, transport, shipping and banking. But as Sweden is too small a country to allow two big air companies to be organized today, the Government expressed the wish that for this extended Swedish airline the new company which had to be founded should use



—American Swedish Monthly Photo

SWEDEN'S POSTWAR PLANNERS: *K.H. Larsson, chief engineer of A. B. Aero-transport, Sweden's European line; P. A. Norlin, managing director, the new Swedish Intercontinental Airlines, and author of this article for Air Transportation; Tore H. Nilert, U. S. representative for ABA.*

Aerotransport's existing organization and ground facilities.

After extensive discussion between those interested, the new company was founded under the name *Svenak Interkontinental Lufttrafik Aktiebolag* (SILA — Swedish Intercontinental Airlines) with a minimum capital of 10,000,000 kronor (about \$2,500,000) and a maximum capital of 30,000,000 kronor. An agreement between this company and A. B. Aerotransport has now been signed, under which SILA can use Aerotransport's organization for its traffic, and which stipulates that SILA shall run all airlines outside Europe with connecting lines to Sweden inside Europe and Aerotransport all internal traffic in Sweden and Swedish air traffic in Europe. The new company is privately owned, and its traffic plans will concern all parts of the world.

In the new company almost all of the big Swedish industrial and export firms, shipping lines, and business concerns are represented. However, no special group holds a majority of the company's shares. Through the exchange of two members of the boards of the two companies, of whom one is the president of A. B. Aerotransport and one the president of SILA, close cooperation is secured. The new company's air traffic policy will follow the same lines along which the Swedish air-

lines have so far been developed. Thus, close cooperation with the other Scandinavian countries after the war may be expected.

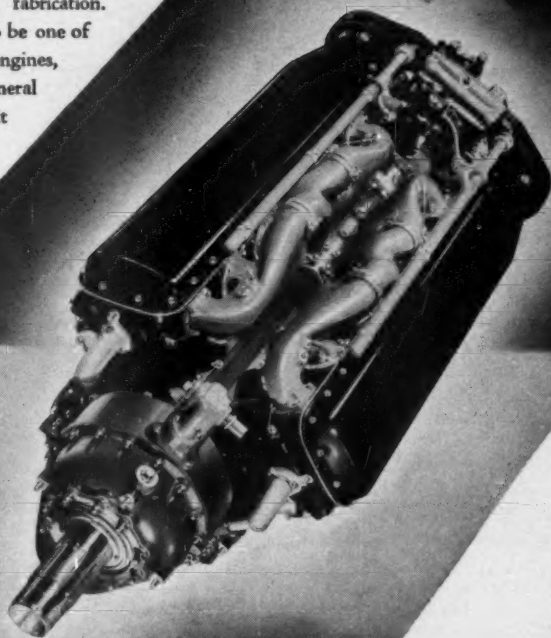
Development of Swedish and Scandinavian air traffic after the war naturally is dependent upon the rights and possibilities after the war to fly to other countries. The Swedish policy has always been to allow foreign companies to fly into Sweden, provided that the Swedish airlines would have the same right to fly to foreign countries.

International air transport can only become a great factor for binding all states closer if operated universally on sound commercial lines. Then the commercial airlines can be a most important and valuable means whereby the human race may achieve conditions leading to maintenance of peace. Large as well as small countries must then have the right to do their unselfish part in a spirit of international cooperation in the air transport industry all over the world.

The first step to establish such international air traffic must be to secure the right of free air passage over foreign countries, including the right to land for refueling, overhauls, and repairs in the territory of any other state, as well as the right to carry passengers, mail, and freight between one country and another, upon offering, if required, reciprocal rights,

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How 70 People Flew Out of China With Doolittle

*Epic Story of CNAC Flight
With 21-Passenger Plane
And Japs Minutes Away*

WHEN a famous American flying general who has just bombed Tokyo meets a veteran Chinese pilot while the two are playing hide-and-seek with Jap fighter planes high over the snow-capped Himalayas, what is the appropriate subject for conversation? The answer in this case was: "How safe is it for us to land at the next stop?"

The general was Jimmy Doolittle, grimy, unshaven, wearing a battered officer's cap and badly-torn khaki pants—mementos of sleepless days and nights following one of the most audacious flights in history. The pilot was Moon Chin, Baltimore-born veteran of 10 years of flying all over China, at the moment piloting a 21-passenger Douglas of China National Aviation Corp. on a "regular" (meaning danger-ridden) flight from China to India.

The time was April 1942; the weather, forbidding; the place, somewhere over mountainous southwest China.

At the controls of the DC-3, Moon Chin, his eyes glued to the darkening horizon was pushing his ship with all the power in its two thundering engines toward Myitkyina, the last air field remaining to the stubbornly retreating Allied troops in northern Burma.

The Japanese, realizing the importance of Myitkyina, were throwing everything they had into the drive to capture it. Every hour brought them nearer. With its fall would go the last place where supplies could be flown in and from which CNAC, the RAF and the U. S. Air Transport Command could evacuate as many as possible of the hordes of refugees streaming ahead of the relentless invaders.

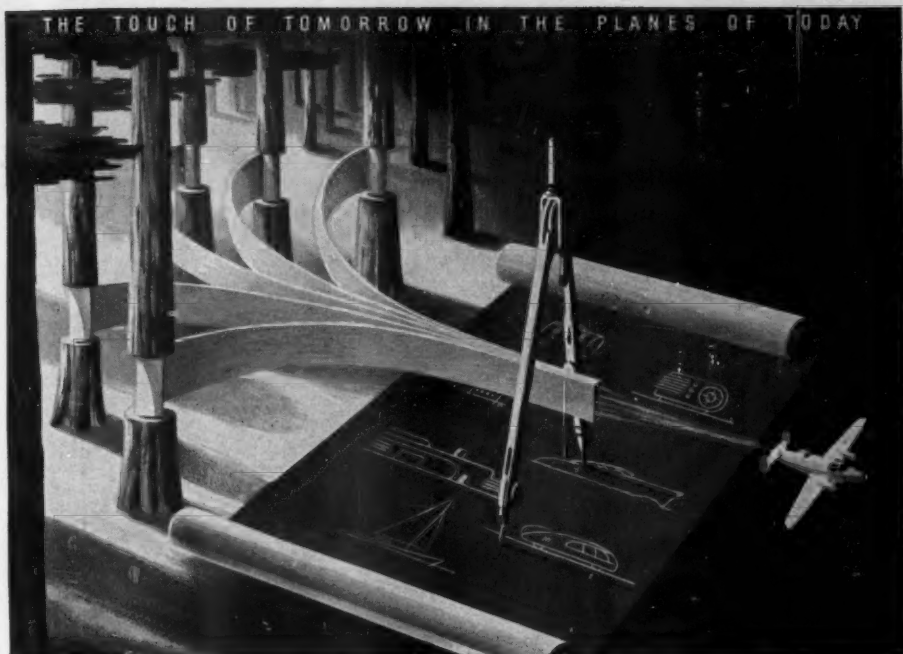
Moon Chin had his orders—to proceed from Chungking to Myitkyina as fast as possible, there pick up CNAC's radio equipment and personnel and fly them to safety in India.

Midway to Myitkyina his earphones crackled with the voice of the Chungking operator: JAPANESE PATROL PLANES ARE ON YOUR TRAIL.

No time now to think of getting to his destination before sunset; he would have to seek refuge. Throttling back, he nosed the transport down toward an isolated field. Almost before the wheels had stopped rolling he was out of the cockpit and herding his passengers under the nearest shelter while he directed the hasty camouflaging of the plane with leaves and mud.

In the nose of the plane the radio was clicking with frantic messages from Chungking that the Japs were within gunshot of Myitkyina, that Moon Chin should use his own judgment as to proceeding there. But no one was there to take the warning.

After an hour Moon Chin figured he had wasted enough time dodging Japs and that he would have to hurry to get to Myitkyina before dark.



A New Industry Comes Out of the Woods

Plywood, the structural material of the future, takes to the skies today. Planes of many types are now being made of plywood, superior in certain characteristics even to fine steel or aluminum.

With war-time expansion of plane production, Fairchild foresaw shortages in the light metals. Research and engineering development of plywood at Fairchild were given a great stimulus. New data and new techniques were developed, made possible by recently perfected adhesives. Plywood craftsmanship jumped ahead many years in a few short months.

By a patented process, known as DURAMOLD, layer-on-layer of wood, laid cross-grain and permanently joined with special resins under heat and pressure, may now be molded into single and multi-curved structural surfaces of consistently high quality.


DURAMOLD possesses some distinct advantages over metal aircraft surfaces. It is more fire-resistant. It makes lighter, stronger planes; the rigid DURAMOLD shell is its own support,

eliminating the need for a great clutter of internal stiffeners, bulkheads, and other reinforcing members necessary in thin metal construction. It does not wrinkle nor buckle in the airstream, as does a metal surface. There are no non-flush rivets, as no rivets are required. Thus, it is *smoother* in the air . . . horsepower is not handicapped by increased "drag." The plane can fly faster, is more maneuverable and has greater lift and range in the field of high-speed performance.

Production of DURAMOLD structures in spars, flat pieces, and complex curved surfaces is now concentrated within the aviation industry. Its purposes are 100% the purposes of war. But, when victory is won, the techniques, facilities and craftsmanship of a new industry can and will be applied to peace-time products.

DURAMOLD, another example of those Fairchild achievements which put the "touch of tomorrow in the planes of today," is available to all "priority" manufacturers.

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AS he shepherded his passengers back into the cabin he watched a short, squat officer, obviously American, with an infectious grin, wearing an old leather flying jacket with DOOLITTLE stenciled above the pocket, climb aboard. The name was familiar, and the face—he had seen it before when Doolittle had come to China several years before to do exhibition flying.

But he hadn't seen him since. Hadn't even heard of him. After all, when you are flying a transport all over China keeping open an aerial lifeline to the outside world, you don't have much time to keep up on the latest trips—and what a trip it had been, if he only had known—of a former friend.

Off again into the clouds. Doolittle sat hunched in the rear of the passenger cabin clutching a tightly rolled canvas flying suit firmly under his arm, watching the flight map and occasionally peeking out the window on the darkening jungle valleys and jagged peaks below.

But this wasn't the way to India—and the U. S. This way lay toward enemy-overrun Burma, with a Jap bullet just over the next mountain. Not that he minded adventure. But his job now was to get to Washington and report on an important mission.

Hastily he scribbled a note on brown wrapping paper, marked it for the pilot, handed it to the stewardess.

Moon Chin's eyes left the glowing dashboard only for an instant. No, he couldn't comply with the request and step into the cabin to talk with the American.

Another exchange of notes.

Doolittle: IN CHUNGKING THIS MORNING AMERICAN AMBASSADOR TOLD ME THAT THE JAPS WERE CERTAIN TO BE IN MYITKYINA BEFORE NIGHTFALL.

Moon Chin: YOU MUST RELY ON MY JUDGMENT. CNAC WOULDN'T HAVE ORDERED ME THERE IF THE JAPS CONTROLLED THE FIELD.

Heaving a sigh, Doolittle settled back to watch (and pray) as Moon Chin nursed the ship between the threatening hills, over the treetops and down on the field, where two other DC-3's were resting. Five thousand black dots clustered around the planes—refugees throwing away the treasures of a lifetime to save weight, thinking that that would assure them a seat in those winged birds of mercy, their last hope of escaping from the enemy.

Even above the roar of the engines, the crack of rifle fire and of scorching flames came to the passengers before the cabin door opened on a scene of confusion and terror.

No time to lose. First a hasty refueling, then stowing aboard CNAC equipment and personnel. Then the refugees, chosen carefully according to need.

Doolittle watched from his seat. Ten, 15, then the full 21 seats were filled. Still more. Thirty-five, 40, finally 50 people were wedged in.

Beads of sweat trickled down Doolittle's face. And he thought it had been tough taking off from the Aircraft Carrier *Hornet's* deck in that Mitchell bomber on the bosom of a heaving sea.

Then he spotted Moon Chin.

"I hope to hell you know what you're doing," he shouted.

Moon Chin is a patient man and patiently he explained to the worried American officer: "Sir, everyone we can get aboard means another life saved. I've often flown more than 50 in one of these ships. And besides, there's a war going on over here. You do lots of things you wouldn't do at home—when you have to!"

Now there were 60 milling, crying men, women, and children in a plane designed to fly normally with 21. Moon Chin ordered the cabin door closed and locked. Then he asked Doolittle to stand guard at the cockpit door. He didn't want any weeping mothers throwing themselves on his neck in the midst of a tricky takeoff.

And as he explained to Doolittle, he planned to fly all the way to Calcutta rather than risk a night landing on an unknown field at Dinjan, in northern India. With a little stretching of the gas supply he thought he could make it.

"Now," mumbled Doolittle, "is when I know I'd rather go back the way I came!"

Four hours and 12 minutes later they were safely in Calcutta. Now to get that equipment out of the rear mail compartment.

Then the unexpected climax to the whole unbelievable adventure. Before the startled eyes of Moon Chin and Doolittle there tumbled out of the mail compartment door eight disheveled cramped Chinese. They had stowed themselves aboard from the outside after the cabin door had been firmly locked. Seventy-one had made that trip with Doolittle that night!

IT'S AN WORLD

By L. A. GOLDSMITH, *Economic Analyst*, AIR TRANSPORTATION

THAT is the intriguing question posed in a recent airline ad in a national magazine. They go on to say "To the thousands of people who travel by air, miles are merely minutes—oceans and continents hours." Telescoping of time and space is upon us, right here and now.

How Far Is An Hour? Four Miles or Four Hundred?

At the end of 1943, we will have in the U. S. (exclusive of military airdromes) about 835 major airports. Compare this number with our major seaports!—a mere drop in the bucket. This means that travel and transportation facilities have been practically brought to one's very doorstep. Less than 100 of these major airports existed in 1940! In addition to the major fields, there are about 2,000 lesser ones.

Quoting another advertisement, "Try to find a spot that's more than 60 hours away from your local airport." That is going to be difficult, and soon it will be out of date, when you consider time-distances already established, and soon to be broken with still better flight records.

TALKING of flight records, how would you like to have dinner in Ireland Saturday evening; breakfast in Newfoundland Sunday morning; lunch in Canada that same noon, and arrive in New York later in the afternoon—all of this in the span of one day, including the leisurely stop overs for meals en route. Did I say a two-continent day? Why, it's a two-hemisphere day! William L. Shirer, the radio commentator, accomplished this little air jaunt recently, and made it in good time to go on the air for his usual Sunday afternoon broadcast.

Two-Continent Day— Four-Continent Week!

To top that story, here's another. A young flight officer sauntered into his home in Baltimore recently, and announced casually that he had just returned from one week's flight, in which time he had visited *four* continents! "It's all in the day's work," he remarked, "nothing to make a fuss about." When quizzed on the subject of which four continents, he tossed back: "Oh, that's a military secret, but there are only five continents, so just use your imagination."

THE Republic of Colombia, South America, was the first country in the world to introduce commercial aviation—almost a quarter of a century ago. So perhaps it is quite natural that Rafael Rojas, a Colombian citizen, should go all out for Aviation, Airplanes and Air Transportation.

Colombian Business Man Pioneer in Civil Aviation

Mr. Rojas is that rare combination—a successful young business man who takes time out, and spends his own money, to promote civil aviation in his country. As a business man Mr. Rojas represents very successfully a number of leading American firms with products as varied as chemicals and cigarettes—wines and whiskies—paints and printing inks—air compressors and cement—as well as motorcycles and airplanes. He is now in this country, discussing business developments and placing orders.

An aviation enthusiast and a pilot, Mr. Rojas speaks glowingly and with obvious pride of how he pioneered in founding an aviation school in Cali, his home town. Traveling with Mr. Rojas is Graduate No. 1 of the school—young Gonzalo Garces, also of Cali. Mr. Garces will enter the employ of one of the leading aircraft manufacturers in this country, where he will familiarize himself with technical angles of airplane manufacture before returning to Cali.

The school was started five years ago as Aero Club Colombiano, a name chosen by Mr. Rojas because he hoped for both local and Government financial help. When financial aid proved difficult to obtain, he continued on his own, and to date has invested about 80,000 Colombian pesos in the institution. Mr. Rojas believes it has been worth the effort, because as he points out, "I believe I am making a real contribution to the progress of my country."

The school has its own air field at Jamundi (pronounced *Ha-moon-dee*) about 15 miles

south of Cali. The runway is 4,500 ft. long, and can be extended if necessary to 7,500 ft. Its width is 600 ft., allowing two planes to land take off simultaneously.

There is a workshop for repairing and servicing planes, 30 dormitories for students, and offices for the professors. They have their own electric light plant, and a private swimming pool for the exclusive use of the students, water for the pool being piped from the nearby Rio Claro. The professor in charge, Lieut. Rodriguez, studied aviation in the U. S. A., earning his tuition by playing a guitar in Xavier Cugat's orchestra.

Graduates of the school already number 12, one being a young woman. Twenty students are now in session and expect to graduate on Oct. 12—Columbus Day to us, but to all Latin America as well as Spain *el Dia de la Raza* (The Day of the Race).

Mr. Rojas has offered the facilities of Jamundi airfield for the use of U. S. military planes en route to Ecuador and other parts of South America. The field is very strategically located for military purpose, he says, because "It cannot be attacked from the Pacific Coast."

THAT old Arabian Nights story of the magic carpet comes to life in a big way in today's air world. In fact it is actually a *life restorative*, and one of the main factors in helping to keep down our casualty lists to such a small proportion compared to other wars.

Magic Carpet in The Modern Manner

Some of the most badly wounded men require certain treatment that is available only here at home. They are evacuated from the battlefields in transport planes which are converted into flying hospitals. A number of serious cases recently came in five days from India to Bolling

Field, Washington—10,000 miles. These planes carry specially trained Air Evacuation Nurses, and a medical staff sergeant. All transport planes are now being equipped to carry standard stretchers for evacuation of wounded, so that they can be quickly converted into flying ambulances. Up to 30 can be carried in a plane, depending on its size, though wounded are often brought directly from the battlefield in smaller planes, and transferred to a big plane at the base.

FROM SAVING LIFE TO CREATING NEW MERCHANDISE MARKETS is also part of the magic air carpet's story. A few weeks ago a shipment of Guatemalan merchandise was flown to New Orleans by a Pan American Airways *Stratoclipper* in less than six hours. This shipment was for D. H. Holmes Co., one of the largest department stores in New Orleans, and consisted of dolls, linens, jackets, bags, boleros and other novelties—most of them handmade by Guatemalans. These were exhibited by Holmes in a special window display, and promptly sold to eager customers. Arrival of these goods marked the first air express *merchandise* shipment to arrive in New Orleans from Central America on this new inter-American route.

But in spite of the new and ever growing faster flying speeds, there will still be a great and growing need for more surface transportation. If that sounds paradoxical, consider the publicly pronounced opinion of a Government aeronautic official.

AT least that is what C. I. Stanton, Civil Aeronautics Administrator, has to say about the subject when he points out that "expanded air transportation will bring about increased surface traffic, rather than decreasing it," because—as he maintains—"the fuel to keep the

Expanded Air Transportation Far From Bringing About A Decrease In Surface Traffic Will Increase It

planes in the air has to be hauled by surface transport." Mr. Stanton continues to emphasize: "the more planes that fly, the more ships will sail," and that "the airplane will greatly supplement, but will not supplant—other means of transport.

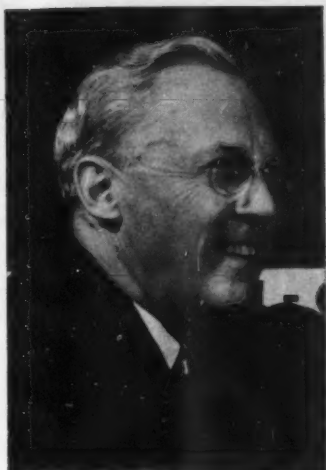
Consider this development, too. The U. S., through the federal airways service, is now operating six intercontinental super-radio stations. In their combined range, these stations blanket the world and provide communication between this country and a plane in flight anywhere in the world. Linking a maze of intercontinental airways, these stations are now used only for the war effort, to provide weather and navigation information.

Just for good measure—doesn't it sound like something "out of this world"—such as the young flight officer's complaint that he had left his laundry in India and would have to wait till the following week to pick it up!

Or, imagine flying beetles from the *Fiji Islands* to serve as a check against a root weevil which was attacking that much needed hemp crop in Honduras.

And then consider that little matter of flying a complete hospital to Alaska in 36 hours.

IT IS AN AIR WORLD OR ISN'T IT? I ask you.



Are Air Cargo's Prophets Really Too Conservative?

Evans Asks Comparisons With Real Cargo Aircraft, Weighs Air-Rail Contest

By COLONEL EDWARD S. EVANS
President, Evans Products Co.

WITH international interest in the future of aviation, particularly air cargo, mounting by leaps and bounds every traffic man is concerned as to its future effect, not only in domestic but in world transportation.

Questions of paramount importance that they are all asking are, "Will it be possible for airline operators to get their costs down to a competitive basis with the rail and truck industries? or, are they going to be restricted to only that type of air freight that relates to the highest brackets—express and mail?"

These are serious questions and their importance warrants meticulous study by all persons concerned.

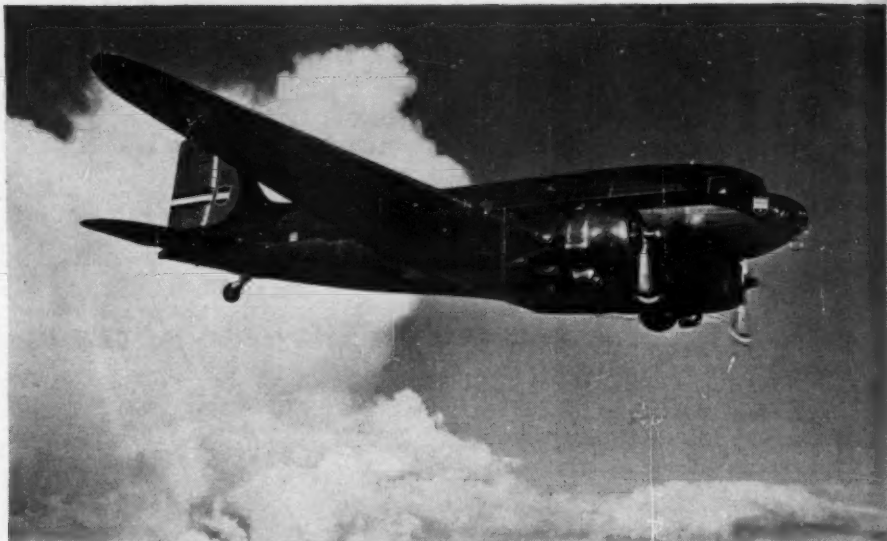
To accept the standards of comparison set up by recent writers on the subject wherein the C-47 airplane (the converted DC-3 passenger transport plane) was used to measure capacity and efficiency of air transportation against modern freight trains is misleading. The conclusions arrived at by those standards are not borne out by the facts when presented in their entirety. It would have been just as foolish in the 1920's to have taken the airplane of that day and said that, for reasons of comparison, we would limit ourselves to the frail airplanes with fabric covered wings, tubular fuselages, and small engines as to use the present already obsolete DC-3's or C-47's as a standard of measurement, or to use the standard "40 or 8" French box cars as a standard of comparison with modern American freight cars.

Already our airplane designers and manufacturers have built planes weigh-

ing up to 160,000 lbs. gross with freight carrying capacity of almost half their weight, and on the drafting boards today are designs of freight carrying airplanes weighing 250,000 lbs. In view of the fact that there is hardly any limit from a structural standpoint as to the size of the airplanes, the planes of the future will be built with a view to the economics of the problem and will take into consideration all of the factors relating to that problem such as economy in man power, economy in operation, speeds, landing fields, shipping centers, etc.

Knowing American genius and indefatigability, we may well expect that every avenue will be explored, every device employed, once the aviation experts undertake the solution of air freight transportation, to improve power units, wing design, streamlining and every other device that their profession can devise to bring the costs of air operation to the lowest possible point.

To be of any value to us in estimating the impact of skyway competition, we



COMPARISONS ARE COCKEYED, insists Colonel Evans, when aviation people use the standard airline Douglas DC-3 as their basis of figuring cargo capacity and cost. One might as well, he says, try to compare—on an even basis—the big Amercian railroad boxcar with the tiny French “40 hommes et 8 chevaux” model of World War I fame.

should try and project our thought to at least the probabilities, if not the possibilities, of future development in aircraft and air transport operation. The C-47 weighs 31,000 lbs. gross and will carry 8,000 lbs. payload at 160 miles per hour, and this is the plane that has been used as a standard by which to measure air competition with the railroads.

The ton-mile cost of operating this plane with 100 per cent load factor is approximately 15½c. The C-46 is roughly estimated to cost, with 100 per cent load factor, about 10½c. per ton mile. But there already has been built the Lockheed *Constellation*, C-69, which weighs 90,000 lbs., will carry 32,000 lbs. payload, and whose operating cost at distances from 200 mph to 500 mph would be from 5c. to 7c. a ton mile.

In view of the fact that there is already being built another cargo plane which weighs 190,000 lbs. and which we estimate will have a payload of 76,000 lbs., and that other planes of much greater size are being considered very seriously, then if the railroads are going to think about air competition in a realistic way they must think about it in terms of huge cargo

carriers with operating costs or ton-mile costs well within the range of our present l.c.l. costs of 4c. per ton mile and lower than our railway express costs which average from 11c. to 18c. per ton mile.

Gliders Cut Cost Further

With the addition of trailer planes and properly designed tow planes these operating costs can again be lowered so that air competition can enter the field of first class freight for which the railroads are now charging a little over 3c. a ton-mile.

It is almost impossible to say what the ton-mile cost of railroad freight is if you try to break it up into its various classifications. The overall costs are easily ascertained and slightly under 1c. a ton mile, but this involves the carrying of 684 million tons, or 55 per cent of the 1½ billion tons of freight originated by the railroads, of coal, ore and other products of the mines. In addition, there are 189 million tons consisting of agriculture, animals, products of the forest which also, to a large degree, are not suitable for air shipment though perishables such as fruit, vegetables, meats, particularly with prog-

ress of dehydration of these products, and especially flowers will be subject to air competition. The bulk of rail and truck freight which could go to the skyways would consist of box car freight commodities of a miscellaneous character which in 1941 gave the railroads 354 million tons of freight or about 30 per cent of the total tonnage originated; as well as mail express and l.c.l.

Distance Makes Difference

It is recognized that the position the skyways will take in our freight picture is going to be largely dependent upon how cheaply airplanes will be able to transport freight. The longer the haul, the more efficient the airplane becomes. Whereas it might not be profitable to take a C-69 flying from New York to Chicago and carry it to the stratosphere—where it gets its most economical operating costs—if it were going to San Francisco it would unquestionably go into the stratosphere at, say, 30,000 feet, which would give it its maximum speed and minimum gas consumption.

Another factor that must be taken into consideration very seriously is the development and use of trailer trains. This contemplates the designing and building of tow planes engineered particularly for the job they have to do, with proper gear ratio, propeller pitch, wing design, center of gravity, etc., and with carefully streamlined trailer planes which have eliminated every surplus pound of weight and lend themselves entirely to economical carrying of cargo. In view of the fact that the glider or trailer plane has no engine, does not have to carry fuel, can be operated with one or two men and need not be designed to withstand the torque of the engines on the power plane, they can be built for about 20 per cent of what a plane of the same size could be built and will be much lighter in weight.

Taking into consideration the use of assisted take-off with rockets or double-header tow planes, a plane can tow behind it after it reaches its desired elevation approximately its own weight. Thus, a 200,000-lb. tow plane which would carry probably 40 per cent of its gross weight in payload or about 80,000 lbs. could, with assisted take-off, tow a glider (or gliders) equal to its own weight which, instead of have 40 per cent payload, would carry 70 per cent minimum of payload. This

would give in tow plane 80,000 lbs. minimum payload, in glider (or gliders) 140,000 lbs., or a total of 220,000 lbs. at a reduction in speed of about 25 per cent. Trailer planes should not be confused with sailplanes or gliders used for sport purposes and which have a wing loading of 3 to 7 pounds to the square foot. These trailer planes will have a wing loading of at least 20 lbs. to the square foot and a speed of 200 miles per hour.

Any aeronautical engineer will tell you that if you have a plane with power enough to go 150 miles per hour and you want to double the speed and make it go 300 miles per hour, you do not double the power, you multiply it by eight. Thus, if you have a power plant that will carry your plane at 300 miles per hour and you gear it down to go 200 miles per hour, you have a great surplus of power because the same formula works in reverse.

For short hauls glider trains are ideal. A number of gliders can be towed behind one tow plane, the aggregate load being equal to the gross weight of the tow plane, and these gliders can be cut loose at the pilot's will and land independently of the train, discharge their freight, reload and, by methods already developed by Richard duPont and the Army Air Force, be picked up without stopping the tow plane. According to the best estimates available, such an operation would reduce the cost of transporting air cargo to between 2c. and 3c. a ton-mile.

Still Lower Costs Likely

There are many aeronautical engineers who feel that any saving other than the convenience offered by the individual trailer planes for individual landings and take-offs can be equalled by increasing the size of the cargo plane and it is a well known fact that the large planes which will permit of simpler construction, of stronger materials, will give relatively greater strength as against weight than will the small planes. As progress is made in air freight transport, engineering developments will tend to simplify construction and reduce costs both in construction and in operation.

For instance, at present it is thought necessary to use 100 octane gasoline which costs 13 1/3c. per gallon, but there is no reason that the cost of fuel for airplanes should be over 3c. a gallon. I know of developments for trucks which permit the

use of third grade gasoline with an octane rating of from 40 to 45 which, with the equipment developed for the purpose, gives equally as good performance as 100 octane gasoline would give in a truck motor and which gives 13 per cent more mileage than the best gasoline in use today with the best present equipment. That this device, and probably others like it, can be developed for transport planes is a foregone conclusion and when this is done, gasoline at 3c. a gallon in tank car lots can be used instead of paying 13 1/3c. a gallon. The device that I have in mind can burn high-grade fuel oil (in conjunction with gasoline for starting) and on experiments made with the thermeron using fuel oil, 23 per cent more mileage was obtained than on high octane gasoline with ordinary equipment. It would be foolish for us to say that methods of this sort could not be employed with airplane engines. It will require experiments and development, but it is well within the range of probability.

A few comparative figures would be of interest. The average freight train for 1941 consisted of 47 6/10 cars of which 37 2/10 per cent or 17 6/10 cars were empty. The loaded box cars at that time carried about 17 tons though under the new ODT advice and pressure they are now loading them much more heavily, and this train will average about 25 miles per hour.

Now, our SKY TRAIN will carry 220,000 pounds or 110 tons with a top speed of 200 miles per hour. One plane will carry 40 tons at a top speed of 300 miles per hour. Therefore, if a train could deliver between Chicago and San Francisco 1,500 tons of freight a month, two airplanes of 80,000 lbs. payload capacity each, making 18 trips per month, could carry about 1,440 tons, which is within 4 per cent of what the train can do. If a sky train were used, consisting of tow plane and trailers, going 200 miles an hour, *one trailer train* would deliver approximately the same as one railroad train during the same period and the COST would be nearly a third less than what the railroads CHARGED for first-class freight.

Sky Trains Will Rival Rails

The things that we have just been talking about are not only possibilities, they are probabilities. That we are very close to them in point of time is indicated by the immense job of logistics being done by the Army with inadequate facilities and small planes like the C-47. The 90,000-lb. *Constellation*, the 250,000-lb. flying boat which Glenn Martin says he has already designed, the 190,000-lb. land plane which is in process of being built and will be completed before the end of 1944—all of these are straws in the wind which bid us be alert and on guard. We



THOUGH HAILED BY ITS MAKER, Curtiss-Wright, as the first plane to be designed primarily as a cargo-carrier on moderate-length runs, even the already famous wooden Curtiss C-76 Caravan is no criterion for honest postwar cost comparisons, Colonel Evans maintains.

should not let our transportation business suddenly find itself under surprise attack such as was suffered by our military forces at Pearl Harbor. Fortunately, if we act at once we have time to readjust ourselves and to meet the competition as sound and realistic business men would do. It takes time for air transportation development and engineering. It has to be done step by step and the methods of air transportation that I have described above will proceed logically and consistently for some years to come before reaching their zenith.

Another question which railroad men are asking is: Is the Government going to subsidize airlines after the war? It is my personal opinion that it will. With modern warfare depending more and more upon air force, the country that is left without adequate aviation resources will be as badly off as countries in the past who had inadequate naval and merchant marine resources. It is therefore vital to the country's very existence that development in aircraft engineering and operation be carefully nurtured and for this

reason the Government cannot allow the young fledgling to depend entirely on its own strength and growth.

If the railroads take an active part in air transportation they need have nothing to fear from Government subsidies of one form or another. To the contrary, they will immediately become the beneficiaries along with the airlines.

That air competition will ruin or destroy the railroads or the truckers is absurd to suggest. If properly handled it should be a great feeder for the railroads and should add as much business as it takes away.

Regardless of the contrary opinions that have been expressed upon the subject, I earnestly believe that the railroads can and should make some sort of working arrangement with the airlines, combining their vast traffic organizations and resources with the experience that airline operators have already acquired and are developing day by day. Each will complement the other; each will benefit mutually; and together they should share the responsibility.

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Shipowners, Railroads, Bus and Truck Companies are All Looking to the Air

Scratch a shipowner, a railroad man, a bus operator or an intercity trucker these days, and up jumps a future airline operator—carrying cargo or passengers or both—he thinks. From applications and announcements made in recent months, the postwar skies will be black with the planes of new operators. What the Civil Aeronautics Board thinks about it all is, of course, another matter—and CAB isn't talking a great deal about it.

Meanwhile, AIR TRANSPORTATION takes you for a quick look at some of the more talkative planners:

Greyhound Bus Corp., giant of the intercity bus field, with coast-to-coast affiliates and connections, plans Air Bus Service, using helicopters in a nationwide passenger, mail and express transport system. No piker, Greyhound pictures its helicopter network paralleling, in the air, its 60,000-odd miles of bus routes, coordinating air and bus service and using buses to feed passengers to the air end of the business. Even present bus terminals and garages are, Greyhound hopes, to be used as landing places and hangars.

Greyhound's President C. E. Wickman sees the whole idea as a way of making air transport available to the masses who live off the present air routes. Air Bus Service wouldn't, he thinks complete very directly with existing airlines. If it can get some equipment, it wants to start service soon between Detroit and Flint, Mich., and between Detroit, Cincinnati and Louisville.

In Canada, *Canadian Pacific Railway*, already operating Canadian Pacific Airlines, plans expansion "on a scale large enough to provide employment for returning members of the RCAF." But Canada is different, and CPAL's plans for penetration of much of undeveloped Canada stand far better chances than most of the current U. S. plans.

Chicago, Burlington & Quincy Railroad, through its wholly owned Burlington Transportation Service, looks with favor on helicopters, too. It applied late in June for au-

thority to operate a 6,380-mile helicopter network, serving 13 states, stretching from California to Illinois.

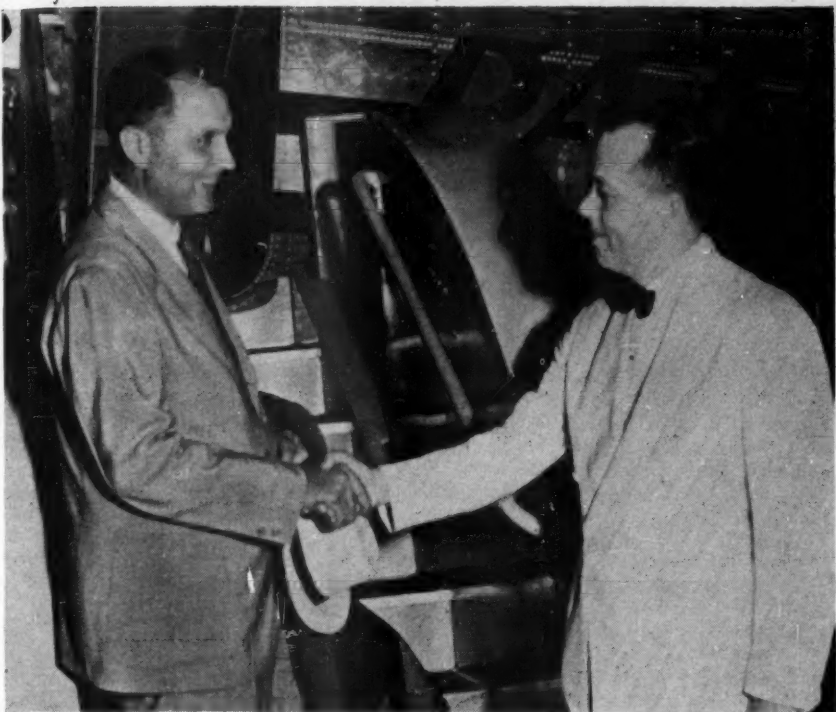
Keeshin Freight Lines, Inc., one of the biggest of the intercity truckers, through wholly owned Keeshin Air Freight, Inc., looks for authority to serve some 200 major cities as well as some foreign countries, with air cargo service, using planes able to carry from five to 11 tons each. The proposed network would cover most of the country.

Southwestern Freight Lines, another trucker, seeks to operate a 4,000-mile air cargo line from New York to Long Beach, Calif., with stops at Los Angeles, Phoenix, Douglas, El Paso, Fort Worth, Dallas, Houston, New Orleans, Birmingham, Memphis, Nashville, Cincinnati and Pittsburgh.

W. J. Dillner Transfer Co., of Pittsburgh, more modest than Keeshin and Southwestern and, of course, far smaller, wants to haul cargo, including household goods, office furniture, etc., to and from a list of 33 airports in Pennsylvania. It proposes to use two cargo planes carrying five tons each and six gliders carrying two or three tons each. What it proposes is really a moving business handled in the air.

Brady Transfer & Storage Co., of Fort Dodge, Iowa, is more ambitious. It proposes a non-scheduled cargo service over regular routes from Boston, New York, Philadelphia and Washington west to a long list of mid-western cities including Minneapolis, Chicago and Fort Dodge.

Skyway Corp. was incorporated last spring



PAN AM'S LATEST new route got off to a flying start on June 13, when President Juan Terry Trippe (left) and 13 other passengers took off from New Orleans for a Stratoclipper hop across the Gulf of Mexico to Merida, Mexico. Trippe here gets a bon voyage from Louisiana's Governor Sam Houston Jones. Service will be thrice weekly, leaving New Orleans on Sundays, Tuesdays and Fridays, and proceeding past Merida over already established routes to Balboa, C. Z.

in Rhode Island to provide, if CAB says yes, a helicopter passenger, mail and express service to 53 New England and Hudson Valley points—primarily a feeder to rather than a competitor of the big airlines, its heads declare.

Shawmut Air Freight & Transport Co., of Boston, since last December has had an application before CAB for authorization as a mail and cargo carrier over a long list of routes radiating from the Hub City to Washington, Chicago, Kansas City, Montreal, Halifax, and even to London. Shawmut, like many of the others, has a trucking background, that of Shawmut Transportation Co., also of Boston.

Matson Navigation Co., it has been reported, hopes for a route to span the Pacific, but no details on its plans are yet available.

Atlantic, Gulf & West Indies Steamship Lines owns a company called International Airways, incorporated in Maine, which has an application on file for a passenger, mail and express route from New York to Puerto Rico, the Dominican Republic, Cuba and Mexico.

Latest of all, *Asbury Park-New York Transit Corp.* filed an application with the Civil Aeronautics Administration for a permit to transport passenger, express and mail between New York City and the New Jersey shore by helicopter. The application asked for two routes: one between the company's 34th St., New York, terminal and Highlands, Long Branch, Asbury Park and Spring Lake, and the other between the terminal and Point Pleasant, Beach Haven and Atlantic City.



(Photo approved by Army Air Corps)

Transport glider, built by Northwestern Aeronautical Corp. in Minneapolis, is shown just before its first take-off in the nation's first experiment involving self-powered flight of such craft. The glider has two 130-horsepower motors equipped with small, hardwood propellers.

Glider Proponents Get Lift from Successful Transatlantic Flight

Glider enthusiasts from Richard C. du Pont, founder of All-American Aviation, now on leave as head of the Army's glider program, to Evans Products Co.'s indefatigable Col. Edward S. Evans (see page 31) had ample cause for rejoicing last month as a cargo glider flew the Atlantic for the first time.

No prepared-in-advance laboratory conditions set the stage for the experiment, and weather so tough that at times the glider pilot completely lost sight of the towplane and could judge its position only by the angle of the tow rope threatened it several times.

The *Voo-Doo*, American-built glider, was piloted by Squadron Leader R. G. Seys, RAF, from Montreal's Dorval Airport to England—3,220 miles—in 28 hours, towed by a standard twin-engined Douglas plane. Cargo consisted primarily of vaccines for Russia.

Just what the flight proved, outside of the fact that a glider loaded with 1½ tons of cargo could be towed that far (a fact no real glider man would have doubted) remained under the wraps of military secrecy. Done once, however, it undoubtedly would be done again. But actual data on how much tonnage the towplane itself carried, how much extra fuel was required to haul the glider and its 3,000-lb. load, were still lacking.

Glider With Motors Is War's Latest Gift To Air Transport

A transport glider powered by two light detachable motors, first of its kind in the history of U. S. aviation, has been flown to Wright Field after its historic first flight at the home base of Northwestern Aeronautical Corp. in Minneapolis.

Additional tests will be made at the USAAF base near Dayton. Meanwhile, there is considerable speculation on the role the power gliders will play in the war.

Military secrecy forbade Army experts to dwell on all possibilities, but there was obviously the hope that gliders can be made to substitute for more expensive and less maneuverable military aircraft for many purposes. The only immediate possibilities glider experts were willing to discuss is that self-powering of gliders will eliminate the need of knocking down and crating the huge craft for shipment by rail to areas where they are used.

The plan to install motors on the glider which is the standard CG-4A type, was worked out by Northwestern engineers and Col. Fred R. Dent, in charge of the Army experimental glider program at Wright Field, Dayton. Motors which lift the glider are of the 130-horsepower type and of such a design that they can be detached or dismantled in an

hour's time. Thus, it would be possible to motorize a completed glider, fly it under its own power for hundreds of miles and then detach the motors and return them by transport plane to be attached to another glider at the factory.

When designed originally, the glider was supposed to carry 15 men, or a jeep and its crew, or a 75 MM field gun, and because of this weight capacity, glider experts who participated in the test flight of the twin-motored craft, are pointing to the possibility of using this type of "plane" as cargo and, possibly, hospital ships.

Northwestern Aeronautical, of which John E. Parker, a director of Northwest Airlines, is president, has been building the gliders for several months in the Twin Cities.

GUIA de Importadores (Importers Guide to American Industries) has distributed a map of Latin American Air Lines. It contains information as to the number of airports and air routes in Latin America. Copies are still available. Address your requests to GUIA, 440 Fourth Ave., New York 16, New York.

'Gibson Girl' Is New Life Saver by Bendix

A virtually foolproof, precision emergency radio transmitter which automatically sends out S O S signals, has been developed by Bendix Aviation, Ltd., of North Hollywood, Calif., and already is receiving widespread use by flying crews of the Army Air Forces.

Because of its hour glass contour, the transmitter was nicknamed the Gibson Girl during its development by Bendix in collaboration with the Signal Corps' Aircraft Radio Laboratory at Wright Field. The name has stuck.

Carried as emergency equipment by crews on ocean-going missions, the waterproof transmitter, which together with accessories weighs only 33 pounds, is capable of sending an automatic S O S over an effective range of 100,000 square miles. No experience or radio knowledge is necessary to use the equipment. Rotation of a hand crank operates a keying device which automatically spells out the S O S and also produces the necessary power through a generator.



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TEN YEARS TO THE DAY from the time she became a fledgling air stewardess, Mary Ellen O'Connor, "flyingest woman in the world," last month gave up her sky career to become a Navy nurse.

Red-haired, laughing Mary O'Connor could look back on a record of approximately 2,500,000 miles of flying or the equivalent of 100 times around the world at the equator. That is more flying than has been done by any other woman in the world, according to United Air Lines, for which she has worked since 1933.

Air Cargo Does A Job For Department Store In New Orleans

Demonstrating the opportunity for daily shipment of merchandise in the shortest possible time between markets in North, Central and South America, a shipment of Guatemalan products was recently flown to New Orleans by a Pan American *Stratoclipper* in less than six hours.

The event marked the first express shipment of merchandise to arrive in New Orleans by the new inter-American air route inaugurated last month, linking New Orleans with the Canal Zone.

The shipment, comprising dolls, linens, jackets, boleros, bags and other novelties, nearly all handmade by natives, was delivered to one of New Orleans' largest department stores where it was placed in a special window display and was soon sold out to eager purchasers.

Brookings Launching Air Research Project Under Dr. Van Zandt

Establishment of a project for economic research in aviation at The Brookings Institution, Washington, under direction of Dr. J. Parker Van Zandt, internationally-known aviation pioneer and economist, and former Director of the Office of Air Transport Information of the Department of Commerce [See *AIR TRANSPORTATION, January*], has been announced by Dr. Harold G. Moulton, President of the Institution.

Program of the new division is to include an exhaustive factual investigation of the issues of postwar international air transport policy, as well as economic aspects of domestic operation in the U. S. and elsewhere.

Dr. Van Zandt, who has been selected to head the project, is an active pilot with several thousand hours of flying time to his credit, holding pilot's license No. 17. In World War I he served in France as a volunteer in the French Army, transferring to the U. S. Air Corps in 1917. He pioneered in blind flying and organized the first air navigation research in the Army Air Corps. Herbert Hoover, then Secretary of Commerce, appointed him secretary of a committee on aviation which helped prepare the original Air Mail and Air Commerce Acts.

From 1935 to 1937, he participated in the establishment of the transpacific airline, and in the following year made a comprehensive survey of civil aviation in 29 countries throughout Asia, the Near East, and Europe. After serving for two years with the Civil Aeronautics Board as Economic and Technical Consultant, he spent a year in South America for the Defense Supplies Corp., RFC, assisting in the elimination of Axis-controlled airlines on that continent.

Last fall, Van Zandt organized the Office of Air Transport Information in the Department of Commerce and served as its director until the end of July.

WAL in New Headquarters

Result of a big expansion program, Western Air Lines has new headquarters, occupying the entire eighth floor of the Guaranty Building, 6331 Hollywood Blvd., Los Angeles.

Canada, Too, Observes A Silver Anniversary Of Air Mail Transport

Trans-Canada Air Lines, since its inception in September 1937, has carried more than 5,500,000 lbs. of mail representing 275,000,000 letters. This was revealed at operating headquarters on the occasion of the 25th anniversary of the establishment of air mail in Canada. On June 24, 1918, Capt. Brian Peck carried the first mail by plane from Montreal to Toronto. His load consisted of 124 letters.

Air mail carried during 1943 is expected to pass all previous records. It is estimated that 1,500,000 lbs. of mail have been handled during the first six months.

While TCA commenced commercial operations in September 1937 on a route between Vancouver and Seattle, it was on March 6, 1938, that experimental daily mail service between Winnipeg and Vancouver began. In October 1938 mail service was established between Lethbridge and Edmonton, followed in March 1939 by service between Montreal, Toronto and Vancouver; November 1939, between Montreal and Moncton; August 1940, Toronto-London-Windsor; May 1941, Toronto and New York. On May 1, 1942, service between Moncton, Sydney, N.S. and St. John's (Tor Bay Airport), Nfld., was established as part of hemispheric defense communications.

Export Airlines Again Flying North Atlantic

Civil air service has been resumed on the North Atlantic short summer route between New York, the United Kingdom, and Africa by American Export Airlines. The season's first flight was made by an American Export Airlines' four-engined *Flying Ace*, commanded by Capt. Edward A. Stewart, with a capacity load of passengers, mail, and cargo.

Executive Vice President John E. Slater made the announcement at a ceremony at the company's recently enlarged operating base in New York, which marked completion of the first year of American Export Airlines' transatlantic operations. This airlines' first scheduled flight to Europe was made June 20, 1942.

American Export completed 1,000,000 miles of over-water flying schedules the same week. Company personnel has multiplied more than four times during the year.

Mexico's Air Cargo Sharply Gaining; Coffee, Chicle Lead

Mexico's civil aviation is operating on an unprecedented scale, due largely to war conditions which include curtailment of waterborne traffic, according to General Alberto Salinas Carranza, former Chief of Military Aeronautics and now Chief of the Department of Civil Aeronautics of Mexico.

In Washington he said that the total length of Mexico's civil aviation routes has more than doubled within the last 11 months, accompanied by an even greater increase in traffic.

A large portion of the present Mexican aerial traffic consists of coffee, chicle and mineral concentrates. Use of planes for transport of coffee, General Salinas Carranza explained, presents the apparent paradox of reducing costs because delays in moving the coffee from remote plantations to ports are eliminated.

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RECORD CARGO LOAD: This 22-foot case, weighing 2,750 lbs., the heaviest single cargo shipment to be carried by a transatlantic Clipper, was recently flown out of New York by one of Pan American Airways' famous flying boats. The shipment shown above is being rolled up a specially constructed 30-foot ramp, prior to being placed aboard the Clipper.

Airline Service Is Slowly Expanding In Spite of War

With painful slowness, but nevertheless steadily, U. S. airline service is being extended to additional cities. That expansion can be any faster is doubtful, with a meager half dozen planes restored airline service late in the spring and only the faintest hopes for added equipment in the near future.

Nevertheless:

American Airlines has been permitted by CAB to include San Diego as a stop on its Dallas-Phoenix-Los Angeles run, except that it cannot engage in local service between San Diego and Los Angeles.

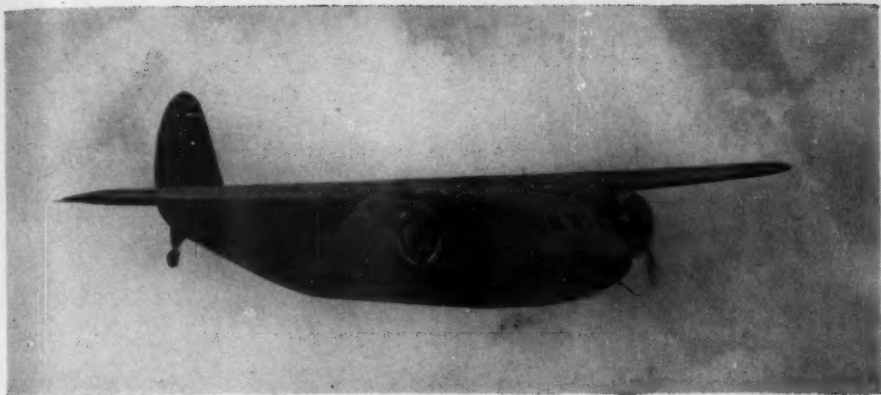
Western Air Lines has been allowed to include Palm Springs and El Centro, Calif., as stops on its line from San Diego to Salt Lake

City, as soon as "the national defense no longer requires delay."

United Air Lines has been given the same tentative permission to include as stops on its Pacific Coast route Stockton, Modesto, Merced and Visalia, Calif.

More important than any of these, three airlines have been given permission to inaugurate service into Washington: *United*, on a nonstop basis from Toledo to Washington, which connects Washington directly with more westerly points on UAL such as Chicago, Denver and San Francisco; *TWA*, from Dayton via Columbus and Wheeling; *Eastern*, from Louisville via Frankfort and Lexington, Ky., and Charleston, W. Va.

Meanwhile, in Canada, *Trans-Canada Air Lines'* main line was extended in June from Vancouver to Victoria, B. C., to make TCAL's the longest line on the continent—3,911 miles from St. John's, Newfoundland.



Termed a "front line dispatcher" by its designers, the Cessna Aircraft Company's Loadmaster is shown undergoing factory flight tests at Wichita, Kansas. Designed to operate from small fields, the new plane will be able to dispatch supplies and men to actual battle areas, its designers say.

New Cessna Plane Expressly Designed As Cargo Carrier

America's newest cargo plane, the Cessna *Loadmaster*, has completed preliminary factory tests and is expected to undergo flight tests by the Army Air Forces soon.

Unique in the cargo field, the *Loadmaster* is designed as a "front line dispatcher" to carry on from the point that present transports lose utility—to carry men and supplies from main air fields and supply bases to actual battle areas—landing and taking off on small fields.

The new plane was designed expressly as a cargo ship and—for once—does not represent the conversion of an existing military or commercial type to cargo use. The fuselage is

of welded steel tubing, the wings of plastic plywood, the entire structure fabric-covered. It is powered by two 600-horsepower Pratt & Whitney motors. Cessna engineers point out that this type of construction—a composite of steel tubing and plywood—is preferable to either all wood or all metal. It not only conserves strategic metals; it is lighter and the difference in the weight between this and all-plywood construction is converted to additional pay-load capacity and speed.

The British *Mosquito* bomber has already proved in raids over Europe that all-metal construction is not essential in combat. Shells pass through wooden construction with no more disastrous results than in metal-formed aircraft and the damage is usually quickly and inexpensively repaired. The *Loadmaster* is somewhat similar, is also easy to maintain and repair making it a "natural" for operation in battle areas.

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Specializing in aviation insurance for over 20 years

Canadian Airlines Inaugurate Larger Insurance Coverage

Further evidence of Canada's aviation safety record comes in an announcement from G.

Shannon Grover, general manager of Stewart, Smith (Canada) Ltd., Montreal, that his company has completed air travel passenger insurance contracts with all Canadian airlines, giving larger benefits at greatly reduced rates. Lines included are Trans-Canada, Canadian Pacific, together with all their subsidiaries, and Maritime Central Airways.



Shannon Grover

In the past, air travel insurance has been available to Canadian travelers only on certain routes and only up to \$5,000. But under the new contracts it becomes as easy to obtain \$20,000 of insurance as to buy a ticket and it will cover the air passenger on any regular, special or chartered trip, over any scheduled airline route in North America, including Alaska, the Canadian Northwest Territory, Newfoundland, Bermuda and the West Indies.

The minimum premium for \$20,000 insurance is \$1. Miners or prospectors flying from Edmonton to Copper Mine or Aklavik on one of the scheduled trips made by Canadian Pacific Air Lines can obtain the same amount of insurance at the same basic rates as the business man in the U. S. on a short trip from Washington to New York.

Insurance is not limited to actual flying but also provides the passenger with protection while riding in airline land conveyances provided to take him to and from airports.

Another feature is that passengers may stop over at cities en route as often as they wish, so long as the entire trip is completed in 30 days.

Panagra's Report Shows Huge Growth

Visiting the New York offices of Pan American-Grace Airways, of which he is vice president in charge in South America, at Lima, Thomas J. Kirkland announced comparative statistics of the first quarter of 1943 as against 1942.

	1942 First Quarter	1943 First Quarter	Percentage Increase
Miles Flown.....	810,035	1,111,205	37%
Passengers carried.....	9,926	15,415	55%
Passenger Miles Flown....	7,847,136	12,302,700	56%
Express Carried—Pounds..	194,294	529,811	173%

"These extraordinary increases result from maximum utilization of existing equipment and the assignment of 2 DC-2's to freight operations exclusively," Kirkland stated. "Inasmuch as through certain sectors our load factors are now 100%, additional equipment is urgently required to keep pace with the growing demand."

The figures for the first quarter of 1943 include the express total for Panagra's cargo operation between Balboa and Buenos Aires, which is the longest commercial air freight operation in the world operated by an airline having a U. S. certificate.

In the last 12 months Panagra has instituted a new line across the Andes from Antofagasta to Salta serving a rich mineral area, and by its extension to Buenos Aires, increasing the domestic services in northern Argentina over 30 per cent, and has also established service between Ecuador and Colombia through Ipiales.

Bostonian Took First 'Air Mail' Letter To Benjamin Franklin

Among the items in the Aviation Collection of the State Street Trust Company, Boston, is a wood engraving of the first balloon to fly the English Channel with passengers aboard together with a picture of one of the two passengers, Dr. John Jeffries, of Boston. On this trip—Jan. 7, 1785—he carried a letter from England to a former Bostonian then in France, the famous Benjamin Franklin. Thus two Bostonians were prominent figures in the first delivery of a letter by air.



(TRADE MARK)

Port Six Times LaGuardia's Size Emerges from Wraps in New York

Even New York's often talkative Mayor Fiorello H. LaGuardia has been strangely silent for a long time about one of his city's most ambitious projects for postwar use. But last month the silence was broken and newsmen had a look at progress to date on Idlewild Airport, an airport so huge it will literally dwarf LaGuardia Field, which as recently as 1940 was "the last word."

Stretching for three miles from east to west, two miles from north to south, it will be approximately six times LaGuardia's size.

No date is set for its completion, however, according to Chief Engineer Jay Downer, nor are even the complete plans by any means finished. Much will depend on the length of the war and on the need for vastly expanded port facilities which New York envisions for the immediate postwar period.

Expectations, however, are that:

► There will be 13½ miles of runways, 200 feet wide, of a strength to handle planes weighing up to 150 tons, much bigger than any now in operation.

► The "hangar line" for landplanes will be six miles long. There will also be a mile of hangars for seaplanes.

► Capacity will run in the neighborhood of 900 planes in and out in 15 hours.

► Based on experience at LaGuardia Field and the expectation of 100-passenger flights to Europe every hour after the war, the new port will probably house 30,000 to 40,000 employees of the city and the airlines, and to handle the vast number of employees, passengers and others who will be connected with mid-Manhattan by subway.

► A large landing area and parking lot for helicopters is an important part of the plan.

Located on Jamaica Bay, in Queens, the new port is being leveled and its area enlarged by the dredging of sand from the bay, a part of the job under way since February 1942. Its cost is expected to reach close to, if not beyond, \$100,000,000, an amount most of which has not yet even been appropriated. That,

however, seems to be the least of the city's worries right now. City officials appear to feel that the money will be forthcoming once the immediate necessity for the field's completion is apparent. Meanwhile, work goes on.

LaGuardia Field will by no means be abandoned when the new field is opened. A plan already widely discussed calls for the use of LaGuardia for "local" traffic from points closer to New York than Chicago, and of Idlewild for through traffic to points as far as Chicago and farther, including transatlantic traffic as well, of course. But nothing definite is settled on that score, either.

One point about which little has so far been said officially but much is certain to be said later on: Idlewild is almost certain to become, if present plans go through, the first real cargo airport in the country, insofar as large-scale operations are concerned.

WAL Uses First Airline Global Clock

Western Air Lines has adopted the first 24-hour global clock timetable to be used by any domestic airline in the U. S. . . . as mentioned in its recent newspaper ad, *21:35 o'clock and all's well!*

Basis of the 24-hour clock is the system used by the Army and Navy, in which all hours after noon are designated by the addition of 12. Thus, 9:35 p. m. becomes 21:35, midnight is 24.00, and 12.45 a. m. is 00:45.



(TRADE MARK)

Air Shippers Get Important Break As Express Rates Go Down a Tenth

Shippers by air applauded last month as one item of cost went down—air express rates. Effective July 15, Railway Express Agency effected a base reduction of 12½ per cent, which means an overall reduction of 10½ to 11 per cent, applying to shipments within the continental U. S. but not to or from Canada or Newfoundland.

Between New York and Los Angeles, for example, the cost of an air express shipment will go down by a very substantial 12 cents per pound. The reduction does not, however, affect the standard minimum charge of \$1 per shipment.

United Air Lines, which points with pride to its hauling of 30 per cent of the entire domestic air express total, went to work with a sharpened pencil and figured that the reduction would mean an annual saving of \$250,000 to shippers via its lines alone, based on present volume. United pointed out, too, that with the new reduction the cost of an

average air express shipment of given size and weight is only about one-third of what it was when air express first began—a trend that air shippers (and all interested in air cargo's development) fervently hoped would continue and even accelerate as cargo traffic increases.

Concurrent with the express reductions, passenger fare cuts went into effect on July 15 on most airlines. Sample reductions pointed out by United:

	Old Fare	New Fare
New York-San Francisco	\$149.95	\$138.85
Chicago-New York	44.95	38.85
Chicago-San Francisco	105.00	100.00

How Much . . . How Fast . . . for How Much?

Effective July 15, 1943

Air Miles	Approximate Flying Time	1 lb.	3 lbs.	5 lbs.	10 lbs.	25 lbs.	50 lbs.	100 lbs.
200	1½ Hours	\$1.00	\$1.04	\$1.11	\$1.26	\$1.75	\$3.50	\$7.00
500	4 Hours	1.00	1.25	1.52	2.19	4.38	8.75	17.50
1000	9 Hours	1.00	1.57	2.19	3.74	8.75	17.50	35.00
2000	17 Hours	1.00	2.22	3.54	7.00	17.50	35.00	70.00
3000	20 Hours	1.00	2.52	4.20	8.40	21.00	42.00	84.00

Railway Express Agency's air express division issues this graphic table of weight, flying time and costs for express cargo shipments within the U. S. It's part of a new, easy-to-understand, file-size brochure on "How To Ship by Air Express during War-time" now being distributed among shippers-by-air. Note that the 1-lb. rate doesn't increase, regardless of distance. The cost of a single pound shipment is the same, wherever the destination in the U. S.

AIR COMMERCE NOTES

United Air Lines claimed a record in June, as the month's revenue passenger-miles shot up 34 per cent above June 1942. Revenue plane-miles increased only 10 per cent, indicating that percentage of passenger occupancy was far higher.

Pan American Airways' miles flown shot up 80% in 1942 as compared with 1941, according to Pen Am's annual report. Total revenue added up to \$109,000,000, net income to \$3,780,015, as compared with 1941's \$3,361,251.

Trans-Canada Air Lines has opened a new central reservation control office in Toronto, to speed handling of reservations for passengers throughout its transcontinental system. On its first day of operation, it handled more than 2,100 phone calls and sent and received 6,400 teletype messages.

Los Angeles-Mexico City service of Compania Mexicana de Aviacion, Pan American affiliate, has been speeded up, reduction of layover time for customs inspection at Mexicali. Reduction is from an hour to 40 minutes southbound, and from an hour to 30 minutes northbound.

Pan American's Miami-Canal Zone line is now in its 15th year. First flight in 1929 took three days, via a circuitous steppingstone route. Today, four-engined, 22-ton *Clippers* make the trip every day in 14 hours, with four or five extra-section flights made most weeks.

Trans-Canada Air Lines carried more than three times as much cargo, in the form of express, in 1943's first five months as in the corresponding period of 1942. Poundage rose from 80,428 to 260,589.

In four years of transatlantic flying, Pan American Airways has carried 100,000,000 letters between the U. S. and Europe. Figure is based on a mail poundage of 2,500,000 in the four years, calculated at an average of 40 letters to the pound.

With fewer airplanes, Delta Air Lines handled more passenger, air mail, and air express business during the first six months of 1943 than in the same period last year. Air express increased 129.3 per cent, the total for the first half of 1943 being 106,739,901 pound-miles, and 47,174,444 for the same period in 1942.

AIR TRANSPORTATION Books

YOUNG AMERICA'S AVIATION ANNUAL—1942-1943—by Reginald M. Cleveland and Frederick P. Graham, is packed with information for air-minded readers, together with photographs, showing all new developments of the year. *Robert M. McBride & Co., 116 E. 16th St., N. Y. C. \$2.50.*

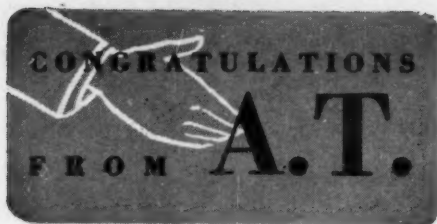
THE AIR OFFENSIVE AGAINST GERMANY—by Allan A. Michie. Part of this book is written from personal experience. The author, who has gone through the blitz on London, Coventry, Plymouth, Bristol, gives an analysis of what the RAF has done to soften the Third Reich. He states that in 1943, by using current planes and equipment, Germany can be bombed to a point where it can be invaded. *Henry Holt & Co., 257 Fourth Ave., New York. \$2.00.*

AIR NEWS YEAR BOOK—edited by Phillip Andrews. Its pages made up almost entirely of photographs of planes, this book paints a vivid picture of modern aviation the world over. These planes are arranged according to the countries of their origin. *Duell, Sloan & Pearce, 270 Madison Ave., New York. \$3.75.*

THE FIRST CENTURY OF FLIGHT IN AMERICA—by Jeremiah Milbank, Jr., surveys the first century of aeronautical history in this country, back to 1784. The author relates many colorful stories about great inventors and aeronauts. Not only will this book serve as a valuable help to technologists, but it will be of intense interest to the layman. *Princeton University Press, Princeton, N. J. \$2.75.*

Britain-Moscow Air Line Opened

Air service on a regular schedule has been opened between Britain and Moscow by British Overseas Airways, it was disclosed on July 15. The journey requires three and one-half days, with a 24-hour layover at Cairo, Egypt. The route, it was learned, is over North Africa to Cairo, with stops at Habbaniyah, Iraq; Pahlevi, Iran; Astrakan, Kuibyshev and Moscow.



TO E. J. Foley, named assistant to Engineering Vice President William Littlewood by American Airlines. In his new post, Foley is to assist Littlewood in various technical projects undertaken by American, and will also serve as assistant to the chairman of American Airlines' important but little publicized planning committee.



E. J. Foley

TO Jack Nichols, Representative from Oklahoma till early last month and leader of last spring's determined though losing fight for a regular standing committee on aviation in the House, who has forsaken politics to become a vice president of Transcontinental & Western Air.

It was as chairman of a special House committee to investigate air accidents, a post he took over in March 1941, that Nichols developed his case for a standing aviation committee, strongly opposing the concentration of power over aviation in the already busy standing Committee on Interstate & Foreign Commerce. Aviation's future, he felt, would be severely restricted, by keeping legislative air planning in the same committee that had to do the same job for rails, trucks and ships [AIR TRANSPORTATION, February: "Air Cargo Goes to Washington"].

TO Ralph Oursler and William A. Lippman, Jr., new Skyloader service and training engineers with Evans Products Co., Detroit (see page 00). Both longtime engineers in the field of air cargo loading, they were among the founders last year, in Los Angeles, of the Air Cargo Research Assn., supported

by six major airlines and nine plane manufacturers. Oursler went to Evans from Lockheed, Lippman from North American.

TO Capt. Edward Orrick McDonnell, USNR, just named chief of staff of the mighty new Naval Air Training Center at Corpus Christi, Tex.

An Annapolis graduate of 1912, winner of the Congressional Medal of Honor at Vera Cruz in 1914 and of the Navy Cross in World War I, he retired from the Navy in 1919, returning in 1941. From late 1941 to early 1943 he was commanding officer of Floyd Bennett Field, New York.

In civilian life he was president of National Aviation Corp., and a director of United Aircraft Corp. and of Pan American Airways.

TO R. H. Burck, Jr., who last month became southern division traffic manager for Braniff Airways, in Austin, Tex. He had been district traffic manager and station manager in Austin for the past several years. Now he'll supervise all traffic work in 10 major Texas cities.

TO Roy Backman, named city traffic manager in Long Beach, Calif., by Western Air Lines, a new post created by rising business. He had been assistant city traffic man in Los Angeles.

TO John B. Leypoldt, of Miami, who has assumed new duties as Pan American Airways' district traffic manager in Port of Spain, Trinidad.

TO William S. Hough, named manager of the newly formed aircraft section of Johns-Manville's industrial department, set up to help the far-flung J-M organization contribute a larger service to aviation development.

TO William Munroe, reservations agent in charge for Trans-Canada Air Lines in New York since establishment of TCAL's Manhattan office, who has been promoted to station manager at LaGuardia Field. Munroe succeeds Irving Thomas, transferred to the station managership at Toronto.

TO W. C. Bowman, named assistant superintendent of maintenance for both the North Atlantic and commercial divisions of Northeast Airlines. He was formerly territorial supervisor in Miami for the Scintilla Magneto division of Bendix Aircraft Corp.

TO Mason Mallory, former Los Angeles traffic representative for Western Air Lines, who has become city traffic manager for Las Vegas, Nev.

TO John P. Gaty, vice president and general manager of Beech Aircraft Corporation, who has been appointed to the board of governors of the Kansas City region of Smaller War Plants Corp., according to an announcement by Brigadier General Robert W. Johnson, chairman of SWPC.



John P. Gaty

Gaty said he was pleased to accept the appointment because it confirmed the effectiveness of the Beech Aircraft personnel who are entrusted with subcontracting, and because he is interested in helping tide small business enterprises over a difficult period. Their problem is one that goes beyond the present war period, he said.

TO Harold J. Roig, president of Pan American-Grace Airways, on his receiving the National Order of Merit of Ecuador, founded by the Liberator Simon Bolivar and awarded to nationals and foreigners for "outstanding civic merit."

Presentation of the award was made on behalf of President Arroyo del Rio of Ecuador by Francisco Guarderas, Minister of Foreign Affairs, at a banquet in honor of Roig at Quito. The Panagra president was on one of his periodic flying inspection tours of Panagra routes and services in South America. [See "We Fly Freight," AIR TRANSPORTATION, July.]

TO C. G. Trimbach, new chief of the developments and armament department of the airplane division research laboratory of Curtiss-Wright, succeeding Peter F. Rossman who was recently named general manager of the newly established development division of Curtiss-Wright Corp.

TO Miss Anne Means, newly appointed as a publicity writer in connection with air express traffic by Railway Express Agency.

Miss Means has had wide publicity and editorial experience, her former connections including posts with Batten, Barton, Durstine & Osborn, S. H. Camp & Co., *Arts and Decoration*, *The Spur* and *Scribner's*.



Miss Anne Means

TO Charles M. Jamieson, just named chief engineer of Culver Aircraft Corp., Wichita, Kans. Now only 26, he is one of the youngest chief engineers in the entire aircraft industry. He's been with Culver, starting as assistant chief engineer, since he won his B. S. in Aeronautical Engineering at Parks Air College in 1938.

TO Leon Beatty Judd, comptroller of Delta Air Lines and with Delta since 1928, on his election to a directorship in the company.

TO W. C. Burks, district traffic manager for Chicago & Southern Air Lines in Chicago, who has been appointed to establish and head the lines' new research and planning department.

Meanwhile, W. R. Gillen, of New Orleans, moves to the Chicago district manager's post; Burrell Weber, district manager in Shreveport succeeds Gillen in New Orleans, and Forrest Campbell, city traffic manager in Houston, moves north to Shreveport to succeed Weber.

AIR TRANSPORTATION EQUIPMENT

Air Cargo Handling Equipment

Automatic Transportation Co., 53 West 87th St., Chicago, Ill.
 R. J. Ederer, 540 Orleans St., Chicago, Ill.
 Electrolift, Inc., 30 Church St., New York.
 Evans Products Company, 15310 Fullerton Ave., Detroit, Mich.
 A. B. Farquahar Co., 453 Duke St., York, Pa.
 The Globe Company, 4000 Princeton Avenue, Chicago, Ill.
 W. F. Hebard & Co., Chicago, Ill.
 The Heil Co., Milwaukee, Wis.
 Mechanical Handling Systems, 4680 Nancy Ave., Detroit, Mich.
 Nutting Truck & Caster Co. 1163 Division St., Faribault, Minn.
 Robbins & Myers, Inc., Hoist & Crane Division, Springfield, Ohio.
 J. L. Stuart Mfg. Co., 31 Front St., San Francisco, Cal.
 Jarvis B. Webb Company, Detroit, Mich.

Cargo Straps

Leathercraft Furniture Mfg. Co., 3045 E. 11th St., Los Angeles, Cal.

Conveyors

Barber-Greene Co., Aurora, Ill.

Elevators (Portable Hydraulic)

Federal Aircraft Works, 3456 Mississippi Drive, Minneapolis, Minn.

Equipment

Automatic Transportation Co., 101 W. 87th St., Chicago, Ill.
 Whiting Corp., Harvey, Ill.

Loading Stands—Passenger

Thomas L. Siebenthaler Mfg. Co., 410 W. Sixth St., Kansas City, Mo.

Mailroom Equipment

National Postal Meter Co., 14 Franklin St., Rochester, N. Y.

Platforms—Service

Security Fence Co., Somerville, Mass.

Platforms—Skid

Standard Pressed Steel Co., Jenkintown, Pa.

Scales

Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Ill.

Scales—Mail and Parcel

Toledo Scale Co., Telegraph Rd., Toledo.

Tractors and Trucks

Allis-Chalmers Mfg. Co., Milwaukee.
 Automatic Transportation Co., 53 W. 87th St., Chicago, Ill.
 J. L. Case Co., 700 State St., Racine, Wis.
 Baker Industrial Truck Div. (Baker-Raulang Co.), 2168 W. 25th St., Cleveland, Ohio.
 Caterpillar Tractor Co., Peoria, Ill.
 Clark Tractor Division of Clark Equip-

ment Co., Battle Creek, Michigan.

Cleveland Tractor Co., 19300 Euclid Ave., Cleveland, Ohio.

Cunningham-Hall Aircraft Corp., 13 Canal St., Rochester, N. Y.

Deere & Co., Moline, Ill.

Elwell-Parker Electric Co., 4170 St. Clair Ave., Cleveland, Ohio.

Four-Wheel Drive Co., Clintonville, Wis.

"H H" Manufacturers, 1140 Broadway, Long Beach, Calif.

International Harvester Co., 180 N. Michigan Ave., Chicago, Ill.

Jarvis & Jarvis Inc., Palmer, Mass.

Karl Ort, W. Poplar St., York, Pa.

Lift Truck Division, Waukesha, Wis.

Massey Harris Co., Racine, Wis.

Mercury Manufacturing Co., 4104 So. Halstead St., Chicago, Ill.

Oliver Farm Equipment Co., 400 W. Madison St., Chicago, Ill.

The Ready-Power Co., 3849 Grand River Ave., Detroit, Mich.

Standard Pressed Steel Co., Jenkintown, Pa.

Toro Manufacturing Corp., 3042 Snelling Ave., Minneapolis, Minn.

Towmotor Co., 1226 E. 152nd St., Cleveland, Ohio.

Yale & Towne Mfg. Co. (Philadelphia Division), 4530 Tacony St., Philadelphia, Pa.

Trailers

American Bantam Car Co., Butler, Pa.

Butler Mfg. Co., 1233 Eastern Ave., Kansas City, Mo.

Clark Tractor Division of Clark Equipment Co., Battle Creek, Mich.

C. H. & E. Manufacturing Co., 3849 N. Palmer St., Milwaukee, Wis.

Mercury Mfg. Co., 4104 So. Halstead St., Chicago, Ill.

Schweizer Aircraft Corp., Prescott Ave., Heights Station, Elmira, N. Y.

Trailer Co. of America, Cincinnati, Ohio.

Yale & Towne Mfg. Co., Chrysler Bldg., New York, N. Y.

Trucks—Baggage

Aeronautical Trading Company, Floyd Bennett Airport, Brooklyn, New York.

Chas. W. Carll's Sons, Trenton, N. J.

Colson Corp., Elyria, Ohio.

Lewis-Shepard Sales Corp., Watertown, Mass.

Thomas L. Siebenthaler Mfg. Co., 410 W. Sixth St., Kansas City, Mo.

Trucks, Electric (Platform Type)

Rocky Mountain Steel Products Inc., 1346 Wall St., Los Angeles, Calif.



(TRADE MARK)

International Express and Mail Tables

Express rates quoted are from the U. S. international airport of departure and are based on the latest prevailing tariffs. Shippers are warned, however, that they are subject to change.

Bro—Brownsville, Tex. Gf—Grand Forks, N. D.
 Bw—Boston, Mass. Lgs—Los Angeles
 Cg—Chicago Mia—Miami
 Cub—Cut Bank, Mont. No—New Orleans
 Eo—El Paso Nyk—New York
 Fv—Fort Worth Sq—San Diego
 Ste—Seattle

International Air Express is subject to two charges: one a charge per pound weight or measurements at carrier's option (200 cu. in. to the pound of weight), the other a charge per \$100 of valuation. The two must be added on any shipment to determine the cost. Neither includes insurance, which may be purchased by the shipper from the carrier or otherwise.

Priorities: The air carriers warn all shippers that express traffic, both U. S. Government and commercial, is so heavy that no guarantee can be given that any shipment will depart on any particular plane unless it en-

joys U. S. priority. Otherwise it will depart, in relation to other shipments, in the order received at the international airport used, subject to wartime limitations. Shippers should forward cargo to international airports as far in advance of desired departure as possible and should communicate via **Railway Express Agency, Inc.** with the international air carrier as to whether the shipment can be forwarded without priority, as shipments without priority for certain countries are, at present, under embargo. (On cargoes to be shipped via American Export Airlines, Inc., shippers should inquire at their office, Room 920, 25 Broadway, New York.)

International air carriers whose schedules and rates are included here are indicated by the letter following the symbol for the airport:

A—American Airlines.
 C—Colonial Air Lines.
 E—American Export Airlines.
 EA—Express Aero Inter-Americano, S. A.
 NE—Northeast Airlines.
 NW—Northwest Airlines, Inc.
 P—Pan American Airways System and affiliates.
 T—Trans-Canada Air Lines.
 U—United Air Lines.
 W—Western Air Lines

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per 1/4 Oz.
		Per Lb.	Per \$100 Value		

LATIN-AMERICA LINES

Antilla, Cuba.....	Mia P	.24	.25	Dly	.10
Antofagasta, Chile.....	Mia P	1.26	.50	M,W,Th,F, Sa	.40
"	No P	1.34	.50	Su,Tu,F	.40
"	Bro P	1.34	.50	Tu,W,Th,F, Su	.40
"	Lgs P	1.95	.50	M,Tu,W,Th, F,Sa	.40
Aracaju, Brazil.....	Mia P	1.26	.50	Su,W	.40
"	No P	1.71	.50	Su,Tu,F	.40
"	Bro P	1.71	.50	M,F	.40
"	Lgs P	2.28	.65	Su,Th	.40
Araia Branca, Brazil....	Mia P	1.24	.50	Su	.40
"	No P	1.56	.50	Su	.40
"	Bro P	1.56	.50	F	.40
"	Lgs P	2.13	.50	Th	.40

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per 1/4 Oz.
		Per Lb.	Per \$100 Value		
Arequipa, Peru.....	Mia P	1.22	.50	Dly	.30
"	No P	1.26	.50	Su,Tu,F	.40
"	Bro P	1.26	.50	Dly	.30
"	Lgs P	1.93	.50	Dly	.30
Arica, Chile.....	Mia P	1.25	.50	M,W,Th,Sa	.40
"	No P	1.26	.50	Su,Tu,F	.40
"	Bro P	1.26	.50	Tu,W,Th,F, Su	.40
"	Lgs P	1.94	.50	M,Tu,W,Th, Sa	.40
Aruba, N. W. I.....	— P			via Maracaibo, Ven.	
Asuncion, Para.....	Mia P	1.73	.50	Su,F	.40
"	No P	1.86	.50	Tu,F	.40
"	Bro P	1.86	.50	W,F	.40
"	Lgs P	2.43	.65	Tu,Th	.40
Bahia, Brazil.....					
(See Sao Salvador)					

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per 1/4 Oz.
		Per Lb.	Per \$100 Value		
Balboa, Canal Zone	Mia P	.76	.40	Dly	.15
"	No P	.90	.40	Su,Tu,F	.15
"	Bro P	.90	.40	Dly	.15
"	Lgs P	1.45	.50	Dly	.15
Baracos, Cuba	Mia P	.28	.25	Dly ex Sa	.10
Barcelona, Venezuela	Mia P	.85	.40	Dly	.25
"	No P	1.16	.50	Su,Tu,F	.25
"	Bro P	1.17	.50	Dly	.25
"	Lgs P	1.78	.50	Dly	.25
Barranguilla, Colombia via Kingston	Mia P	.61	.40	Su,Tu,W,F	.35
via Balboa	Bro P	1.03	.40	Dly	.35
"	No P	1.50	.50	Dly	.35
"	Lgs P	1.03	.40	Tu,Th,Sa	.35
Bauru, Brasil	Mia P	1.58	.50	Su	.40
"	No P	1.71	.50	F	.40
"	Bro P	1.71	.50	F	.40
"	Lgs P	2.28	.65	Th	.40
Belem, Brasil (See Para)					
Bello-Horizonte, Brasil	Mia P	1.65	.50	Su,M,W,F	.40
"	No P	1.03	.40	Tu,Th,Sa	.35
"	Bro P	2.13	.50	M,W,F,Su	.40
"	Lgs P	2.69	.65	Su,Tu,Th,F	.40
Bonair, N. W. I.	P			via Maracaibo, Ven.	
Buenos Aires, Argentina	Mia P	1.56	.50	Dly	.40
"	No P	2.13	.50	Su,Tu,F	.40
"	Bro P	1.70	.50	Dly	.40
"	Lgs P	2.26	.65	Dly	.40
Cali, Col. via Balboa	Mia P	.89	.40	Dly	.35
"	No P	1.70	.50	Su,Tu,F	.40
"	Bro P	1.03	.40	Dly	.35
"	Lgs P	1.59	.50	Dly	.35
Camaguey, Cuba	Mia P	.26	.25	Dly	.10
Camocim, Brasil	Mia P	1.22	.50		.40
"	No P	1.50	.50		.40
"	Bro P	1.50	.50		.40
"	Lgs P	2.05	.50		.40
Campeche, Mexico	Mia P	.41	.25	Su,W,F	.10
"	No P	.41	.25	Su,Tu,F	.10
"	Bro P	.51	.40	Dly	.10
"	Lgs P	1.00	.40	Dly	.10
Campo Grande, Brasil	Mia P	1.48	.50	Su,F	.40
"	No P	1.61	.50	Su,Tu	.40
"	Bro P	1.61	.50	W,F	.40
"	Lgs P	2.18	.50	Tu,Th	.40
Canavieiras, Brasil	Mia P	1.33	.50	Su,W	.40
"	No P	1.81	.50	Su,Tu,F	.40
"	Bro P	1.81	.50	M,F	.40
"	Lgs P	2.38	.65	Su,Th	.40
Caracas, Venezuela (See La Guaira)					
Caravelas, Brasil	Mia P	1.36	.50	Su,W	.40
"	No P	1.85	.50	Su,F	.40
"	Bro P	1.85	.50	M,F	.40
"	Lgs P	2.41	.65	Su,Th	.40
Cayenne, Fr. Guiana	Mia P	1.02	.40	Dly	.30
"	No P	1.29	.50	Su,Tu,F	.30
"	Bro P	1.26	.50	Th	.30
"	Lgs P	1.91	.50	W	.30
Cayo Mambi, Cuba	Mia P	.26	.25	Dly ex Sa	.10
Chetumal, Mexico	Mia P	.55	.40	W,F	.10
"	No P	.55	.40	Su,Tu	.10
"	Bro P	.55	.40	Su,Th	.10
"	Lgs P	1.04	.40	W,Sa	.10
Chiclayo, Peru	Mia P	1.11	.50	Dly	.30
"	No P	1.19	.50	Su,Tu,F	.30
"	Bro P	1.19	.50	Dly	.30
"	Lgs P	1.81	.50	Dly	.30
Cienfuegos, Cuba	Mia P	.23	.18	Su,Tu,F	.10
C. del Carmen, Mexico	Mia P	.45	.25	Su,W,F	.10
"	No P	.45	.25	Su,Tu,F	.10
"	Bro P	.47	.40	Dly	.10
"	Lgs P	.94	.40	Dly	.10
Ciudad Trujillo, D. R.	Mia P	.45	.25	Dly	.10
Cochabamba, Bolivia	Mia P	1.26	.50	W,Sa	.35
"	No P	1.35	.50	Tu,F	.35
"	Bro P	1.35	.50	Tu,F	.35
"	Lgs P	1.95	.50	M,Th	.35

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per 1/4 Oz.
		Per Lb.	Per \$100 Value		
Concepcion, Bolivia	Mia P	1.31	.50	Sa	.35
"	No P	1.45	.50	F	.35
"	Bro P	1.45	.50	F	.35
"	Lgs P	2.03	.60	Th	.35
Cordoba, Argentina	Mia P	1.49	.50	Dly	.40
"	No P	1.63	.50	Su,Tu,F	.40
"	Bro P	1.63	.50	Dly	.40
"	Lgs P	2.19	.50	Dly	.40
Coro, Venezuela	Mia P	.74	.40	Su,Tu	.25
"	No P	1.11	.50	Su,Tu,F	.25
"	Bro P	1.11	.50	Dly	.25
"	Lgs P	1.69	.50	Dly	.25
Corumba, Brasil	Mia P	1.41	.50	Su,W,F,Sa	.40
"	No P	1.56	.50	Tu,F	.40
"	Bro P	1.56	.50	M,Th	.40
"	Lgs P	2.13	.50	S,W	.40
Cristobal, Canal Zone	Mia P	.76	.40	Dly	.15
"	No P	.92	.40	Su,Tu,F	.15
"	Bro P	.92	.40	Dly	.15
"	Lgs P	1.46	.50	Dly	.15
Cuenca, Ecuador	Mia P	1.06	.40	Su,W,F	.30
"	No P	1.15	.50	Tu,F	.30
"	Bro P	1.15	.50	Tu,Th,Sa	.30
"	Lgs P	1.76	.50	M,W,F	.30
Curacao, N. W. I.	P			via Maracaibo, Ven.	
Curityba, Brasil	Mia P	1.60	.50	Su,W,F	.40
"	No P	2.00	.50	Su,Tu,F	.40
"	Bro P	2.00	.50	M,W,F	.40
"	Lgs P	2.58	.65	Su,Tu,Th	.40
David, Panama	Mia P	.82	.40	Dly	.15
"	No P	.85	.40	Su,Tu,F	.15
"	Bro P	.85	.40	Dly	.15
"	Lgs P	1.38	.50	Dly	.15
Esmeraldas, Ecuador	Mia P	.99	.40	Tu	.30
"	No P	1.11	.50	Su	.30
"	Bro P	1.11	.50	Su	.30
"	Lgs P	1.71	.50	Su	.30
Florianopolis, Brasil	Mia P	1.63	.50	Su,M,F	.40
"	No P	2.11	.50	Tu,F	.40
"	Bro P	2.11	.50	W,F,Sa	.40
"	Lgs P	2.68	.65	Tu,Th,F	.40
Fort de France, Martinique	Mia P	.71	.40	Sa	.15
"	No P	1.00	.40	Su	.15
"	Bro P	1.16	.50	Su	.15
"	Lgs P	1.78	.50	Sa	.15
Fortaleza, Brasil (Ceara)	Mia P	1.23	.50	Su,M,Tu,W,Th,Sa	.40
"	No P	1.54	.50	Su,Tu,F	.40
"	Bro P	1.54	.50	Su,M,Tu,Th,F,Sa	.40
"	Lgs P	2.10	.50	M,W,Th,F,Sa	.40
Georgetown, British Guiana	Mia P	.90	.40	Dly	.30
"	No P	1.24	.50	Su,Tu,F	.30
"	Bro P	1.24	.50	Dly	.30
"	Lgs P	1.88	.50	Dly	.30
Guadalajara, Mexico	Bro P	.43	.25	Dly ex Sa	.10
"	Lgs P	.59	.40	Dly	.10
Guantanamo, Cuba	Mia P	.28	.25	Dly	.10
Guatemala City, Guat.	Mia P	.74	.40	Dly	.12
"	No P	.53	.40	Su,Tu,F	.12
"	Bro P	.53	.40	Dly	.12
"	Lgs P	1.08	.50	Dly	.12
Guayaquil, Ecuador	Mia P	1.04	.40	Dly	.30
"	No P	1.15	.50	Su,Tu,F	.30
"	Bro P	1.15	.50	Dly	.30
"	Lgs P	1.75	.50	Dly	.30
Havana, Cuba	Mia P	.20	.18	Dly	.10
"	MiaEA	.20	.18	Dly	.10
Hermosillo, Mexico	Bro P	.77	.40	Dly	.10
"	Lgs P	.24	.25	Dly	.10
Iguazu Falls, Brasil	Mia P	1.69	.50	Su,F	.40
"	No P	1.91	.50	Tu,F	.40
"	Bro P	1.91	.50	W,F	.40
"	Lgs P	2.43	.65	Tu,Th	.40

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per 14 Oz.
		Per Lb.	Per \$100 Value		
Istepec, Mexico.....	Mia P	.76	.40	Su,W,F	.10
"	No P	.76	.40	Su,Tu,F	.10
"	Bro P	.41	.25	Su,M,Tu,W, Th,F	.10
"	Lgs P	.89	.40	Su,M,Tu,W, Th,Sa	.10
Joso Pessoa, Brasil..... (Cabedello)	Mia P	1.25	.50	W	.40
"	No P	1.64	.50	Sa	.40
"	Bro P	1.64	.50	M	.40
"	Lgs P	2.20	.50	Sa	.40
Kingston, Jamaica.....	Mia P	.81	.25	Su,Tu,W,F	.10
La Guaira, Venezuela.....	No P	1.15	.50	M,W,F,Sa	.25
"	Bro P	1.15	.50	Su,Tu,F	.25
"	Lgs P	1.75	.50	Dly	.25
La Paz, Bolivia.....	Mia P	1.25	.50	Su,Tu,W,Sa	.35
"	No P	1.30	.50	Su,Tu,F	.35
"	Bro P	1.30	.50	M,Tu,F,Sa	.35
"	Lgs P	1.95	.50	Su,M,Th,F	.35
Lima, Peru.....	Mia P	1.18	.50	Dly	.30
"	No P	1.24	.50	Su,Tu,F	.30
"	Bro P	1.24	.50	Dly	.30
"	Lgs P	1.88	.50	Dly	.30
Loja, Ecuador.....	Mia P	1.08	.50	Su,W,F	.30
"	No P	1.17	.50	Tu,F	.30
"	Bro P	1.17	.50	Tu,Th,Sa	.30
"	Lgs P	1.78	.50	M,W,F	.30
Mareio, Brazil.....	Mia P	1.26	.50	Su,M,Tu,W, Th,Sa	.40
"	No P	1.68	.50	Su,Tu,F	.40
"	Bro P	1.68	.50	Su,M,Tu,Th, F,Sa	.40
"	Lgs P	2.24	.50	M,W,Th,F, Sa	.40
Managua, Nicaragua.....	Mia P	.86	.40	Dly	.12
"	No P	.71	.40	Su,Tu,F	.12
"	Bro P	.71	.40	Dly	.12
"	Lgs P	1.22	.50	Dly	.12
Mannos, Brasil.....	Mia P	1.24	.50	Su,W	.40
"	No P	1.56	.50	Tu,F	.40
"	Bro P	1.56	.50	M,F	.40
"	Lgs P	2.13	.50	Sa,Th	.40
Mania, Ecuador.....	Mia P	1.03	.40	Th,Sa	.30
"	No P	1.14	.50	Tu,F	.30
"	Bro P	1.14	.50	W,F	.30
"	Lgs P	1.74	.50	Tu,Th	.30
Manzanillo, Cuba.....	Mia P	.28	.25	Dly ex Su	.10
Maracaibo, Venezuela.....	Mia P	.69	.40	Su,Tu	.25
"	No P	1.08	.50	Su,Tu,F	.25
"	Bro P	1.08	.50	Dly	.25
"	Lgs P	1.66	.50	Dly	.25
Maturin, Venezuela.....	Mia P	.89	.40	Dly	.25
"	No P	1.19	.50	Su,Tu,F	.25
"	Bro P	1.19	.50	Dly	.25
"	Lgs P	1.80	.50	Dly	.25
Mazatlan, Mexico.....	Bro P	.57	.40	Dly	.10
"	Lgs P	.45	.25	Dly	.10
Medellin, Colombia..... (via Barranquilla)	Mia P	1.06	.40	Su,Tu,W,F	.35
Medellin, Colombia..... (via Balboa)	Mia P	1.06	.40	Sa	.35
"	No P	1.10	.50	Tu,Th,Sa	.35
"	Bro P	1.10	.50	M,Th,F	.35
"	Lgs P	1.65	.50	Su,W,Th	.35
Mendoza, Argentina.....	Mia P	1.41	.50	M,W,Th,Sa	.40
"	No P	1.55	.50	Su,Tu,F	.40
"	Bro P	1.55	.50	Su,Tu,W,F	.40
"	Lgs P	2.11	.50	M,Tu,Th,Sa	.40
Merida, Mexico.....	Mia P	.37	.25	Su,W,F	.10
"	No P	.37	.25	Su,Tu,F	.10
"	Bro P	.55	.40	Dly	.10
"	Lgs P	1.04	.40	Dly	.10
Mexicali, Mexico.....	Lgs P	.20	.18	Dly	.10
Mexico City, Mexico.....	Mia P	.64	.40	Su,W,F	.10
"	No P	.64	.40	Su,Tu,F	.10
"	Bro P	.28	.25	Dly	.10
"	Lgs P	.69	.40	Dly	.10
"	Lgs A	.70	.35	Dly	.10

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per 14 Oz.
		Per Lb.	Per \$100 Value		
Mexico City, Mexico.....	Fv A	.42	.25	Dly	.10
"	Co A	.42	.25	Dly	.10
"	So A	.74	.35	Dly	.10
Minatitlan, Mexico.....	Mia P	.53	.40	Su,W,F	.10
"	No P	.53	.40	Su,Tu,F	.10
"	Bro P	.39	.25	Dly	.10
"	Lgs P	.86	.40	Dly	.10
Monterrey, Mexico.....	Fv A	.34	.25	Dly	.10
"	Co A	.34	.25	Dly	.10
"	So A	.62	.35	Dly	.10
"	Lgs A	.74	.35	Dly	.10
Montevideo, Uruguay* (See notes below)	Mia P	.20	.18	Dly ex Su,W	.10
Nassau, Bahamas.....	Mia P	1.25	.50	M,Tu,Th,Sa	.40
Natal, Brazil.....	No P	1.61	.50	Su,Tu,F	.40
"	Bro P	1.61	.50	Su,M,Tu,Th, F,Sa	.40
"	Lgs P	2.18	.50	Su,M,W,Th, F,Sa	.40
Oaxaca, Mexico.....	Mia P	.73	.40	Su,W,F	.10
"	No P	.73	.40	Su,Tu	.40
"	Bro P	.35	.25	Su,Tu,Th	.10
"	Lgs P	.81	.40	Su,Tu,Th	.10
Oruro, Bolivia.....	Mia P	1.26	.50	Su,Tu,W,Sa	.35
"	No P	1.33	.50	Su,Tu,F	.35
"	Bro P	1.33	.50	M,Tu,F,Sa	.35
"	Lgs P	1.95	.50	Su,M,Th,F	.35
Panama City, Panama..... (See Balboa, C. Z.)	Mia P	1.13	.50	Dly	.40
Para (Belem), Brasil.....	No P	1.34	.50	Su,Tu,F	.40
"	Bro P	1.34	.50	Dly	.40
"	Lgs P	1.95	.50	Dly	.40
Paramaribo, Sur.....	Mia P	.97	.40	Dly	.30
"	No P	1.25	.50	Su,Tu,F	.30
"	Bro P	1.25	.50	Dly	.30
"	Lgs P	1.90	.50	Dly	.30
Parnahyba, Brasil.....	Mia P	1.21	.50	Su,W	.40
"	No P	1.48	.50	Su,F	.40
"	Bro P	1.48	.50	M,F	.40
"	Lgs P	2.04	.50	Su,Th	.40
Point a Pitre, Guadeloupe.....	Mia P	.66	.40	Sa	.15
"	No P	.99	.40	Su	.15
"	Bro P	1.14	.50	Sa	.15
"	Lgs P	1.74	.50	Sa	.15
Port au Prince, Haiti.....	Mia P	.37	.25	Dly	.10
Port of Spain, Trinidad.....	No P	1.20	.50	Su,Tu,F	.15
"	Bro P	1.30	.50	Dly	.15
"	Lgs P	1.61	.50	Dly	.15
Porto Alegre, Brasil.....	Mia P	1.70	.50	Su,M,W,F	.40
"	No P	2.19	.50	Su,Tu,F	.40
"	Bro P	2.19	.50	M,W,F,Sa	.40
"	Lgs P	2.75	.50	Su,Tu,Th,F	.40
Puerto Suarez, Bolivia.....	Mia P	1.41	.50	W,Sa	.35
"	No P	1.56	.50	Tu,F	.35
"	Bro P	1.56	.50	Tu,F	.35
"	Lgs P	2.13	.50	M,Th	.35
Preston, Cuba.....	Mia P	.24	.25	Dly ex Sa	.10
Quito, Ecuador.....	Mia P	.97	.40	Dly	.30
"	No P	1.09	.50	Su,Tu,F	.30
"	Bro P	1.09	.50	Dly	.30
"	Lgs P	1.68	.50	Dly	.30
Recife (Pernambuco), Brasil.....	Mia P	1.26	.50	Su,M,Tu,W, Th,Sa	.40
"	No P	1.65	.50	Su,Tu,F	.40
"	Bro P	1.65	.50	Su,M,Tu,W, Th,Sa	.40
"	Lgs P	2.21	.50	Su,M,Tu,W, Th,F,Sa	.40

* Shipments for Montevideo must be assessed rates to Buenos Aires plus 55c per 2 lbs. or fraction thereof (min. 55c) for forwarding by other carrier to Montevideo, plus \$1.10 per shipment transfer charge at Buenos Aires.

Destination	U. S. Gateway & Airline	RATES			Depart	Mail per 1/4 Oz.
		Per Lb.	Per \$100 Value			
Rio de Janeiro.....	Mia P	1.50	.50	Su,M,W,F		.40
"	No P	1.98	.50	Su,Tu,F		.40
"	Bro P	1.98	.50	M,W,F,Sa		.40
"	Lgs P	2.54	.65	Su,Tu,Th,F		.40
Robore, Bolivia.....	Mia P	1.35	.50	Sa		.35
"	No P	1.51	.50	F		.35
"	Bro P	1.51	.50	F		.35
"	Lgs P	2.08	.50	Th,Sa		.35
Salinas, Ecuador.....	Mia P	1.05	.40	Tu,F		.30
"	No P	1.15	.50	W,F		.30
"	Bro P	1.15	.50	Tu,Th		.30
"	Lgs P	1.75	.50	Sa,Tu,F		.30
Salta, Argentina.....	Mia P	1.30	.50	Sa,Tu,F		.40
"	No P	1.45	.50	Su,Tu,F		.40
"	Bro P	1.45	.50	M,Th,Sa		.40
"	Lgs P	2.03	.50	Su,W,F		.40
San Ignacio, Bolivia.....	Mia P	1.33	.50	Sa		.35
"	No P	1.48	.50	F		.35
"	Bro P	1.48	.50	F		.35
"	Lgs P	2.04	.50	Th		.35
San Jose, Bolivia.....	Mia P	1.35	.50	Sa		.35
"	No P	1.50	.50	F		.35
"	Bro P	1.50	.50	F		.35
"	Lgs P	2.08	.50	Th		.35
San Jose, Costa Rica.....	Mia P	.89	.40	Dly		.15
"	No P	.76	.40	Su,Tu,F		.15
"	Bro P	.76	.40	Dly		.15
"	Lgs P	1.31	.50	Dly		.15
San Juan, Puerto Rico.....	Mia P	.53	.40	Dly		.10
San Salvador, El Salvador.....	Mia P	.79	.40	Dly		.12
"	No P	.61	.40	Su,Tu,F		.12
"	Bro P	.61	.40	Dly		.12
"	Lgs P	1.14	.50	Dly		.12
Santa Cruz, Bolivia.....	Mia P	1.28	.50	W,Sa		.35
"	No P	1.43	.50	Tu,F		.35
"	Bro P	1.43	.50	Tu,F		.35
"	Lgs P	1.99	.50	M,Th		.35
Santiago, Chile.....	Mia P	1.38	.50	M,W,Th,Sa		.40
"	No P	1.51	.50	Su,Tu,F		.40
"	Bro P	1.51	.50	Su,Tu,W,F		.40
"	Lgs P	2.08	.50	M,Tu,Th,Sa		.40
Santiago, Cuba.....	Mia P	.26	.25	Dly		.10
Sao Luis, Brazil.....	Mia P	1.19	.50	Su,M,Tu,W,		.40
"				Th,Sa		
"	No P	1.43	.50	Su,Tu,F		.40
"	Bro P	1.43	.50	Su,M,Tu,Th,		.40
"				F,Sa		
"	Lgs P	1.99	.50	Su,M,W,Th,		.40
"				F,Sa		
Sao Paulo, Brazil.....	Mia P	1.55	.50	Su,M,W,F		.40
"	No P	2.04	.50	Su,Tu,F		.40
"	Bro P	2.04	.50	M,W,F,Sa		.40
"	Lgs P	2.60	.65	Su,Tu,Th,F		.40
Sao Salvador, Brazil.....	Mia P	1.28	.50	Su,M,Tu,W,		.40
(Bahia)				Th,Sa		
"	No P	1.76	.50	Su,Tu,F		.40
"	Bro P	1.76	.50	Su,M,Tu,Th,		.40
"				F,Sa		
"	Lgs P	2.33	.65	Su,M,W,Th,		.40
"				F,Sa		
St. Johns, Antigua, British West Indies.....	Mia P	.64	.40	Su,M,W,F,Sa		.15
"	No P	.96	.40	Su,Tu,F		.15
"	Bro P	1.13	.50	Su,M,W,F,Sa		.15
"	Lgs P	1.73	.50	Su,Tu,Th,Sa		.15
St. Thomas, V. I.....	Mia P	.57	.40	Sa		.10
"	No P	.90	.40	Su		.10
"	Bro P	1.10	.50	Su		.10
"	Lgs P	1.68	.50	Sa		.10
Talara, Peru.....	Mia P	1.08	.50	Dly		.30
"	No P	1.17	.50	Su,Tu,F		.30
"	Bro P	1.17	.50	Dly		.30
"	Lgs P	1.79	.50	Dly		.30
Tampico, Mexico.....	Bro P	.20	.18	Dly		.10
"	Lgs P	.81	.40	Dly		.10
Tapachula, Mexico.....	Mia P	.74	.40	Su,W,F		.10
"	No P	.74	.40	Su,Tu,F		.10
"	Bro P	.53	.40	Dly		.10
"	Lgs P	1.02	.40	Dly		.10

Destination	U. S. Gateway & Airline	RATES			Depart	Mail per 1/4 Oz.
		Per Lb.	Per \$100 Value			
Tegucigalpa, Honduras.....	Mia P	.82	.40	Dly		.12
"	No P	.68	.40	Su,Tu,F		.12
"	Bro P	.68	.40	Dly		.12
"	Lgs P	1.18	.50	Dly		.12
Tres Lagoas, Brazil.....	Mia P	1.53	.50	Su		.40
"	No P	1.60	.50	F		.40
"	Bro P	1.66	.50	F		.40
"	Lgs P	2.23	.50	Th		.40
Tucuman, Argentina.....	Mia P	1.34	.50	Su,Tu,F		.40
"	No P	1.40	.50	Su,Tu,F		.40
"	Bro P	1.40	.50	M,Th,Sa		.40
"	Lgs P	2.05	.50	Su,W,F		.40
Turbo, Columbia.....	Mia P	1.06	.40	Su,Tu,W,F		.35
(via Barranquilla)						
Turbo, Columbia.....	Mia P	1.06	.40	Sa		.35
(via Balboa, C. Z.)						
"	No P	1.10	.50	Tu,Th,Sa		.35
"	Bro P	1.10	.50	M,Th,F		.35
"	Lgs P	1.65	.50	Su,W,Th		.35
Tuxpan, Mexico.....	Bro P	.20	.18	Dly		.10
"	Lgs P	.53	.40	Dly		.10
Tuxtla, Gutierrez, Mexico.....	Mia P	.81	.40	Su,W,F		.10
"	No P	.81	.40	Su,Tu		.10
"	Bro P	.45	.25	Su,Tu,Th		.10
"	Lgs P	.93	.40	Su,Tu,Th		.10
Uyuni, Bolivia.....	Mia P	1.26	.50	Su,Tu		.35
"	No P	1.38	.50	Su,F		.35
"	Bro P	1.38	.50	M,Sa		.35
"	Lgs P	1.95	.50	Su,F		.35
Veracruz, Mexico.....	Mia P	.57	.40	Su,W,F		.10
"	No P	.57	.40	Su,Tu,F		.10
"	Bro P	.33	.25	Dly		.10
"	Lgs P	.79	.40	Dly		.10
Victoria, Brazil.....	Mia P	1.41	.50	Su,W		.40
"	No P	1.90	.50	Su,Tu,F		.40
"	Bro P	1.90	.50	M,F		.40
"	Lgs P	2.46	.65	Su,Th		.40
Villahermosa, Mexico.....	Mia P	.49	.40	Su,W,F		.10
"	No P	.49	.40	Su,Tu,F		.10
"	Bro P	.43	.25	Dly		.10
"	Lgs P	.90	.40	Dly		.10

ATLANTIC LINES

Botwood, Newfoundland	Nyk P	.81	.40	Twice wk	.15
England via Foynes*	Nyk E	(Rates on Application)			.30
"	Nyk P	(Rates on Application)			.30
Foynes, Eire via Botwood	Nyk P	1.78	.50	Twice wk	.30
" " via Lisbon	Nyk P	2.00	.50	Fortnightly	.30
"	Nyk E	1.78	.50		.30
Hamilton, Bermuda.....	Nyk F	.55	.25	Twice wk	.10
Horta, Azores.....	Nyk P	1.70	.40	Weekly	.30
Lisbon, Portugal.....	Nyk P	2.00	.50	Weekly	.30
Scotland via Foynes*	Nyk E	(Rates on Application)			.30
"	Nyk P	(Rates on Application)			.30
Shediac, N. B.....	Nyk P	.51	.25	Twice wk	.06
Wales via Foynes*	Nyk E	(Rates on Application)			.30
"	Nyk P	(Rates on Application)			.30

ALASKA LINES

Aniak	Alaska	Ste P	1.08	.40	"	.06
Bethel	Alaska	Ste P	1.11	.40	Schedules not published	.06
Burwash Landing	"	Ste P	.72	.40	"	.06
Fairbanks	"	Ste P	.90	.40	"	.06
Flat	"	Ste P	1.05	.40	"	.06
Galena	"	Ste P	1.00	.40	"	.06
Juneau	"	Ste P	.56	.25	Schedules not published	.06
Lake Minchumina	"	Ste P	.95	.40	"	.06
McGrath	"	Ste P	1.00	.40	"	.06
Moses Point	"	Ste P	1.07	.40	"	.06
Nome	"	Ste P	1.11	.40	"	.06
Tanacross	"	Ste P	.81	.40	"	.06
Tanana	"	Ste P	.95	.40	"	.06
Whitehorse, Canada.....	"	Ste P	.66	.40	"	.06

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per ½ Oz.
		Per Lb.	Per \$100 Value		

CANADIAN LINES

Calgary, Alb.	Nyk T	1.02	†	Dly	.06
Edmonton, Alb.	Nyk T	1.06	†	Dly	.06
Halifax, N. S.	Nyk T	.31	†	Dly	.06
Lethbridge, Alb.	Nyk T	.44	†	Dly	.06
	CubW	.04	†	Dly	.06
London, Ont.	Nyk T	.22	†	Dly	.06
Montreal, Que.	Nyk C	.12	†	Dly	.06
	Nyk T	.12	†	Dly	.06
North Bay, Ont.	Nyk T	.27	†	Dly	.06
Ottawa, Ont.	Nyk T	.18	†	Dly	.06
Regina, Sask.	Nyk T	.76	†	Dly	.06
St. John, N. B.	Nyk T	.31	†	Dly	.06
St. John, N. F.	Nyk T	.55	†	Dly	.06
Sydney, N. S.	Nyk T	.36	†	Dly	.06
Toronto, Ont.	Nyk A	.16	†	Dly	.06
	Nyk T	.16	†	Dly	.06

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per ½ Oz.
		Per Lb.	Per \$100 Value		

Vancouver, B. C.	Ste U	.08	†	Dly	.06
	Nyk T	.56	†	Dly	.06
Windsor, Ont.	Nyk A	.20	†	Dly	.06
	Cg A	.12	†	Dly	.06
	Nyk T	.20	†	Dly	.06
Winnipeg, Man.	GINW	.04	†	Dly	.06
	Nyk T	.60	†	Dly	.06

* British Overseas Airways Corp. carries from Foynes, Ireland to destinations in England, Scotland, and Wales.

† Canadian air express is carried on the same basis as air express within the U. S.: \$50 declared value free; excess charged at 10 cents per \$100 or fraction thereof.

NOTE: The per pound rate shown in this column is based on the average package weighing 25 lbs., i.e.: A 1 lb. package from New York to Ontario would cost \$1—25 lbs. 44. Average cost per pound: 16 cents.

AA Booklet Gives Practical Guidance For Mexican Trade

American Airlines' direct route to Mexico City was established to meet a wartime need. Tons of products essential to the war effort of both countries have been shipped by air express since the service was inaugurated last September. Yet most literature on our neighbor south of the border was directed to tourists and contained little of interest to traders and shippers.

Make Friends with Mexico, new booklet just issued by AA, meets the need for a guide which not only gives a prospective shipper important facts about Mexico's economy but also provides sufficient information about the people and their background so that anyone

making a business trip to the country would not be entirely at sea. It is a bright-looking 28-page booklet of good-neighborly four-color process diplomacy.

The Mexico of today is presented in brief, attractively illustrated sections which give information on new products being developed, such as shark liver oil to replace cod liver oil from Scandinavia and sisal hemp to replace our lost supply from Manila.

Included also are tables of leading minerals, their production and dollar value; latest figures on principal manufactures; statistics on government and distribution of population and occupations; a guide to the markets of Mexico, and data on the principal sales and distribution areas of the country with a brief description of each, giving market characteristics, occupations and industries, imports and exports.



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LETTERS to the Editors

General Royce Pleased

General Royce (Maj. Gen. Ralph Royce, Air Force Commander, Mitchel Field, N. Y.) wished me to express his appreciation . . . for the April issue of AIR TRANSPORTATION with the article by John M. Kelly . . .

He was very much interested in your publication and feels that it is serving a necessary field and one that is bound to become of more and more importance. It is very much in line with his thinking today.

JOHN W. DREGGE,

Major, Air Corps, Aide-de-Camp Office of the Air Force Commander, Mitchel Field

Praise from General Royce, one of the air world's great figures, is praise to be prized, indeed. Mr. Kelly's article, mentioned by Major Dregge, was "Flying Boxcars Already a Reality on War Routes," based on an interview with General Royce in Grand Rapids, Mich., shortly before the great airman's transfer to the big air base near New York which he now commands.—Ed.

Stephens College First

I have read with interest the articles in your magazine since they have a direct connection with what we are attempting to do here at Stephens College.

In the issue of March 1943 there appeared an article entitled "University of Southern California Joins Hands with TWA" and an editor's note to the article saying that there had been a story in the November issue about the forward-looking courses at Iowa Wesleyan.

I know that you will be glad to know that, to the best of my knowledge, Stephens College was the first to pioneer the aviation courses, especially with regards to the airlines. In the school year of 1941-42 we had an Orientation Course which was taught by representatives of the various airlines who came to our campus. Airlines that helped in this course were TWA, Braniff, Mid-Continent, Chicago and Southern and American. Several of these girls went from this course into positions with these airlines. It proved so successful as an experiment, that in the spring of 1942 I was commissioned by our

President, Mr. Wood, to make a survey of the airlines in this country to determine if there was a need for trained personnel and if so what we at Stephens College could do about it. It was during this trip that I made contacts with twelve of the major airlines and found that there was a dire need for trained women to take the places of men in this vital and essential industry.

This has grown beyond any of our expectations to the point that by the end of this school year we will have approximately 1,015 girls who have taken our aviation courses. It has been due to the splendid cooperation of the airlines that we have been able to give the girls the basic traffic procedures which they need and which they learn with the help of a dummy airline office set up on our campus. The airlines are taking these girls as rapidly as we can train them and we can only wish that we could do more.

KENNETH E. NEWLAND

*Head of Aviation Department
Stephens College
Columbia, Mo.*

For more about enterprising Stephens, see September issue of AIR TRANSPORTATION—Ed.

Florida Fruit by Air?

Earl Brown, of DeLand, chairman of the board of Babcock Aviation Corp., predicts that in postwar days Florida's perishable fruits and vegetables will travel to northern markets by glider trains.

He predicts that a transport plane will pick up a glider loaded with tomatoes at Bradenton, another glider-load of citrus at Winterhaven, and two gliders loaded with celery at Sanford—and such a glider train will arrive in New York the same day with its cargoes of fruits and vegetables.

Brown says: "Multiply this glider train by as many times as will be necessary to supply America and you have a picture that will become a reality in postwar days."

AREJAS VITKAUSKAS
Miami, Fla.

The Editors appreciate Reader Vitkauskas' enthusiasm, believe what Mr. Brown predicts will eventually come to pass—not immediately after the war, but some time later.—Ed.

Exporters Need A. T.

... my absence from the office for several weeks explains the reason for not having subscribed to AIR TRANSPORTATION. I am passing your bill for payment, as I feel it very important for companies like our own, who are very much interested in foreign business, to be up to date on air transportation.

W. F. GAMMAGE

Manager, Export Dept.
The Globe-Wernicke Co.
Cincinnati, Ohio

Students Find It Useful

I was very much impressed with the wealth of information I have found in AIR TRANSPORTATION... because, being a student at New York University, I find it a good source for research work. . . . I look on your magazine as a "must" for students in traffic courses. . . .

JOHN S. WELSHER

Newark, N. J.

So does many a traffic manager, too.—Ed.

Big Ship Pioneers—Cont'd

The letter from Miss Winters of Western Air Lines [AIR TRANSPORTATION, May] was correct after all—in its initial sentence. You, on the other hand, were correct in implying that the Fokker F-10 was a three-motored plane. But it happens that Miss Winters is still basically right.

Around 1930, Western Air Express (now Western Air Lines) used one or more airplanes of the Fokker F-32 type. The F-32 mounted four motors in its two tandem nacelles, and was doubtless the first four-motored airliner in history. It was also a rarity, being a remarkable design but far ahead of its time.

JOHN M. HENDRICK
Burbank, Calif.

All thanks to Reader Hendrick for amplifying the record of American pioneering with big planes.—Ed.

I have been following AIR TRANSPORTATION since its inception several months ago, and find that it carries more news of air cargo and

what we can expect in the future than anything else in the field at the present time. You are to be congratulated . . .

W. C. BURKS

District Traffic Manager
Chicago & Southern Air
Lines Inc.
Chicago, Ill.

Among TWA personnel, AIR TRANSPORTATION is one of the most widely read magazines and justly so. It's doing a wonderful job . . .

LEO BARON

General Manager
Public Information Dept.
Transcontinental &
Western Air Inc.
New York, N. Y.

Latin America Boasts Twice as Many Airlines As United States

Rapid advancement of civil aviation in the Good Neighbor republics to the south is reflected by the U. S. Office of Air Transport Information announcement that the number of airlines in Latin America is now two-and-one-half times that of U. S. domestic airline companies.

Total mileage of the 44 operating companies serving Central and South America with 750 scheduled stops is 124 per cent greater than that of U. S. domestic lines prior to wartime curtailment of the latter—106,828 miles compared to 47,703 miles. There are 17 domestic air carriers in the U. S. with 260 stops, according to the report.

Of the 10 leading airlines in Central and South America, listed in the report, five are either divisions or affiliated companies of the Pan American Airways System: Pan American Airways, 19,738; Panair do Brasil, 11,060; Pan American-Grace Airways, 7,436; Avianca, 6,460; and Compania Mexicana de Aviacion, 5,322.

That the aerial crossroads of Latin America are as busy as many in the U. S. is shown by the report showing Mexico City with 109 scheduled arrivals and departures per week, follow by Camaguey, Cuba, with 74; Rio de Janeiro with 71; Buenos Aires with 56, and Barranquilla, Colombia, with 53.

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JOHN F. BUDD
Editor and Publisher

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Out in the Open

The whistle has blown and the first round of the domestic battle for determining postwar airline policy in the world field is under way, as we report elsewhere in this issue.

We report it at some length, despite the fact that to the shippers who are the bulk of our readers, it seems today a highly technical subject of which they have, perhaps none too clear an understanding. But it is a subject that all of us must try to master. For it is important, not alone to the aviation and the air transportation industries—and not alone to the present and future shipper-by-air—but to every American citizen.

Opinions will differ and tempers will grow hot as the points are argued. There is much in American tradition to support the view of the 16 airlines that competition should be wide open (subject of course to sane Government regulation). But there is also very much in the epic history of PAN AMERICAN AIRWAYS to

cause any thoughtful person to feel that the PAN AM "monopoly" has been highly in the best interests of our country thus far, and may still be.

Clearly, there must be much discussion before any decisions are reached in our minds—or for that matter, in Washington, where the real decision will and must be made.

But all should rejoice at the fact that the issues, too long kept under cover, are being brought into the open. We look forward confidently to just as candid and forthright statements from PAN AMERICAN and the other two lines which were absent from the 16-line meeting. And we predict that the ultimate arrival at a sane decision will be immeasurably aided by the free discussion which has now begun.

Cargo Costs Down

One of the most pleasant privileges that AIR TRANSPORTATION has yet had is that of reporting, as we do this month, a reduction in the rates for carrying air cargo in the U. S.

It is surprising enough to be able to report a decline in the cost of anything in these days of creeping—if not galloping—inflation. But this reduction is more than surprising.

Quite probably, it is but the first step in a long series of reductions which the American shipper will enjoy as air transport companies find more economical ways of carrying cargo, and proceed to pass on those economies to the customer.

Only through such reductions can air cargo volume grow into its own.

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Riker & Lynch Inc. (see adv.), 90 John St., New York, N. Y.; Dominion Square Bldg., Montreal, Canada.

Air Cargo Insurance Underwriters

Marine Office of America (see adv.), 116 John St., New York, N. Y.

Wm. H. McGee & Co. Inc. (see adv.), 111 John St., New York, N. Y.

Air Express

Railway Express Agency, Air Express Division (see adv.), 230 Park Ave., New York, N. Y.

Airlines—International

American Airlines (see adv.), 100 East 42nd St., New York, N. Y.

American Export Airlines, 25 Broadway, New York, N. Y.

Expreso Aero Inter-Americano S. A., 33 N.W., First Ave., Miami, Fla.

British West Indian Airways (BWIA), Rockefeller Plaza, New York, N. Y.

Compania Nacional Cubana de Aviacion S. A. Prado 252, altos, Havana, Cuba.

KLM Royal Dutch Air Lines (see adv.), 521 Fifth Ave., New York, N. Y.

Pan American Airways System (see adv.), Chrysler Bldg., New York, N. Y.

Pan American-Grace Airways (see adv.), 135 E. 42nd St., New York, N. Y.

Trans-Canada Air Lines, 673 Fifth Ave., New York, N. Y.

Transportes Aereos Centro - Americanos (TACA), 9 Rockefeller Plaza, New York.

Airlines—Domestic

All American Aviation Inc., 200 W. 9th St., Wilmington, Del.

American Airlines (see adv.), 100 E. 42nd St., New York, N. Y.

Braniff Airways Inc., Love Field, Dallas, Tex.

Chicago & Southern Airlines, Municipal Airport, Memphis, Tenn.

Colonial Airlines Inc., 630 Fifth Ave., New York, N. Y.

Continental Air Lines, Municipal Airport, Denver, Colo.

Delta Air Corp., Municipal Airport, Atlanta, Ga.

Eastern Air Lines Inc., 10 Rockefeller Plaza, New York, N. Y.

Inland Air Lines, Inc., Casper, Wyo.

Mid-Continent Airlines Inc., Municipal Airport, Kansas City, Mo.

National Airlines Inc., Municipal Airport, Jacksonville, Fla.

Northeast Airlines Inc., Commonwealth Airport, East Boston, Mass.

Northwest Airlines Inc., 1885 University Ave., St. Paul, Minn.

Pennsylvania-Central Airlines Corp., National Airport, Washington, D. C.

Transcontinental & Western Air Inc., 101 W. 11th St., Kansas City, Mo.

United Air Lines Transport Corp., 5959 S. Cicero Ave., Chicago.

Western Airlines Inc., Lockheed Air Terminal, Burbank, Calif.

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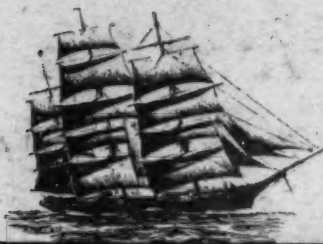
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